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Ben Anderson

@BenAndersonF1



High praise for Ferrari favourite Leclerc

It's difficult to know whether it takes a certain type of driver to thrive at Ferrari. It goes without saying they must be incredibly fast, but to be a true hero to the tifosi takes something more it seems – a certain *je ne sais quoi*.

You must be successful, of course, but you need style with that substance. Charles Leclerc always looks effortlessly cool – part fashion model, part racing driver – and is someone who drives with a flamboyance that can set pulses racing.

This is at the heart of it. Ferrari has produced some great champions of Formula 1, but perhaps its most famous, and loved, son was someone who sacrificed it all without winning a world title.

Gilles Villeneuve is synonymous with that Ferrari spirit – incredible, fearless driving, never giving up, able to produce performances that defy logic, often in cars that weren't especially competitive.

That Piero Ferrari himself should draw the comparison between Villeneuve and Leclerc speaks volumes as to the incredibly high esteem in which all at Maranello regard their current star.

Andrew Benson's superb cover story, beginning on page 30, expertly unpicks the facets of Leclerc's character and skillset that encourage Ferrari to believe it has found another kindred spirit to carry the prancing horse forward to F1's sunlit uplands.

As Ferrari, Mattia Binotto, Jock Clear and Carlos Sainz help explain, Leclerc isn't the finished article yet, but his incredible driving skill allied to an

improving capacity for precise technical feedback and tyre management, means he has an abundance of the star quality needed to be Ferrari's leading man when it finally gets back into title contention.

Binotto references Leclerc winning at Monza in 2019, defending aggressively against Lewis Hamilton under extreme pressure, as one of the key moments that marked Charles out as a true star. Someone else who now knows what it's like to taste victory at that particular cathedral of speed is Monza-lover Daniel Ricciardo, who did the business for McLaren recently.

It's been a hard road for Dan this season, following his childhood dream of driving for McLaren. It was at serious risk of turning into a nightmare after regular pastings from Lando Norris, but Ricciardo worked diligently to find the sweet spot of McLaren's idiosyncratic MCL35M and Monza was the culmination of that effort. He tells Stuart Codling how he did it (with a lot of swearing!) on page 44.

At that same race, Robert Kubica stood in for COVID-afflicted Kimi Räikkönen at Alfa Romeo. We thought it wise to check back in with someone we hadn't spoken to since the pandemic hit in early 2020; what followed (page 40) was an unexpected journey into the mindset of someone who has been through hell and come out the other side.

In another life, we are sure the tifosi would have loved Robert...

Contributors



ANDREW BENSON
BBC Sport's chief F1 writer examines why Charles Leclerc is in pole position to be Ferrari's next world champion (p30)



ALEX KALINAUCKAS
Alex Albon's return to a race seat for 2022, replacing George Russell at Williams, comes under Alex's gaze this month (p52)



OLEG KARPOV
Oleg finds out what Haas is doing to try and improve on what has been an awful season for F1's whipping boys (p68)



STUART CODLING
Two mighty interviews for Stuart this month: McLaren's Daniel Ricciardo on his return to form (p44) and Merc's James Allison (p56)

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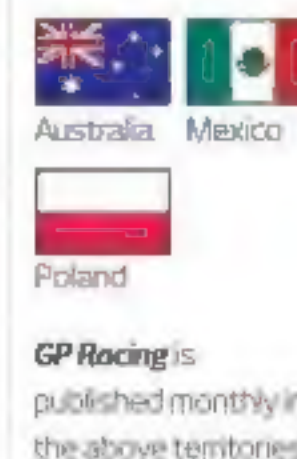
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Checo seizes his moment

It's a privilege to be present on occasions such as this. For Max, obviously, a victory which sets him up well for the championship run in. But for Sergio Pérez this has been a long time coming: a podium finish at his home grand prix after years of frustration here. The crowd, as you can imagine, really rose to the occasion.

This was a tricky shot to pull off because you're hand-holding a long lens and have no control of where the drivers decide they're going to move – plus there's tickertape everywhere. In this shot there's a nice bit of symmetry in their poses and the tickertape is obligingly not blocking their faces!



Photographer
Glenn Dunbar

Where Mexico City, Mexico
When 3:05pm, Sunday
7 November 2021

Details Canon EOS-R5
100-500mm lens, 1/1250th @ F9









Orange and green, rarely seen?

The stadium section in Mexico City's Autódromo Hermanos Rodríguez offers you plenty of photographic bang for your buck: you can go wide and capture the atmosphere of a bustling stadium or go for a slow pan which exploits the graphics the promoters have applied to the stadium surface.

Shooting on a slow speed with a bit of zoom enables you to blur the background and foreground elements and convey a sense of speed, helped here by the red F1 logos on the hoardings and the red and green murals on the ground. Obviously it helps if the colours of the car itself jump out as well; in this case Lando Norris's orange McLaren.



Photographer
Glenn Dunbar

Where Mexico City, Mexico
When 12:00pm, Friday
5 November 2021

Details Canon EOS-R5
70-200mm lens, 1/20th @ F4.5

Inside the arena of combat

No matter how many years you spend in motorsport photography, you never stop thanking your lucky stars whenever you get the opportunity to capture the championship protagonists within the same frame with a backdrop which could only belong to one location.

The Foro Sol stadium has its knockers – its presence meant the legendary Peralta corner couldn't be remodelled with modern levels of run-off – but you really do feel a fantastic atmosphere here. And not just on race day. I've never seen the arena so busy on every day of the weekend – none more so than here, right after the start of the race itself.



Photographer
Steven Tee

Where Mexico City, Mexico
When 1:09pm, Sunday
7 November 2021

Details Canon EOS-1D X MkII
16-35mm lens, 1/8000th @ F5





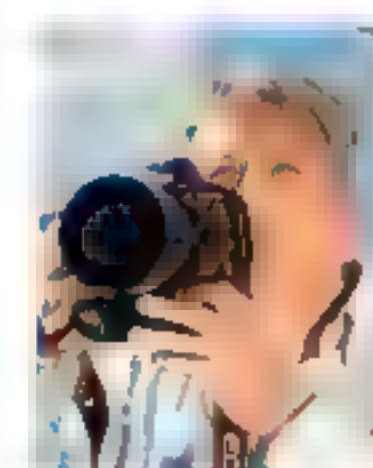




Dr Marko's potent prescription.

One of the things that struck me in parc fermé after the US GP, and why I took this picture, is the expression on Helmut Marko's face as he takes in the spectacle of his two young chargers congratulating each other. He's wearing a mask, but you can still tell there's a broad grin under there.

Dr Marko takes a lot of flak, both for the choices he makes and for the somewhat robust way he treats drivers on the Red Bull young driver programme, so it must be gratifying to see them delivering the goods. Max Verstappen was obviously a talent worth supporting but Sergio Pérez has shown great form of late, and a clear line of improvement over the year.



Photographer
Steven Tee

Where Austin, USA
When 3.42pm, Sunday
24 October 2021

Details Canon EOS-1D X MkII
24-105mm lens, 1/1600th @ F4

Lance is having a rubbery time

During a GP weekend teams will ask their driver to 'lay rubber' in the pit box by spinning their wheels up as they leave, the aim being to deposit a layer of sticky rubber on what would otherwise be a dusty and slippery concrete surface. Having worked with the Aston Martin team for several seasons now I know when they generally do this, so I was able to position myself in the right place at the right time.

This is FP3 and Lance Stroll is the one putting down a deposit in the hope of a fast getaway from his pitstops on Sunday. The tyre smoke adds to the spectacle of the shot and, of course, it's always a bonus to get the red lights on as well.



Photographer
Glenn Dunbar

Where Austin, USA

When 1:34pm, Saturday
23 October 2021

Details Canon EOS-R5
70-200mm lens, 1/1600th @ F2.8



STON MARTIN



TEAMS TORN OVER 23-RACE CALENDAR

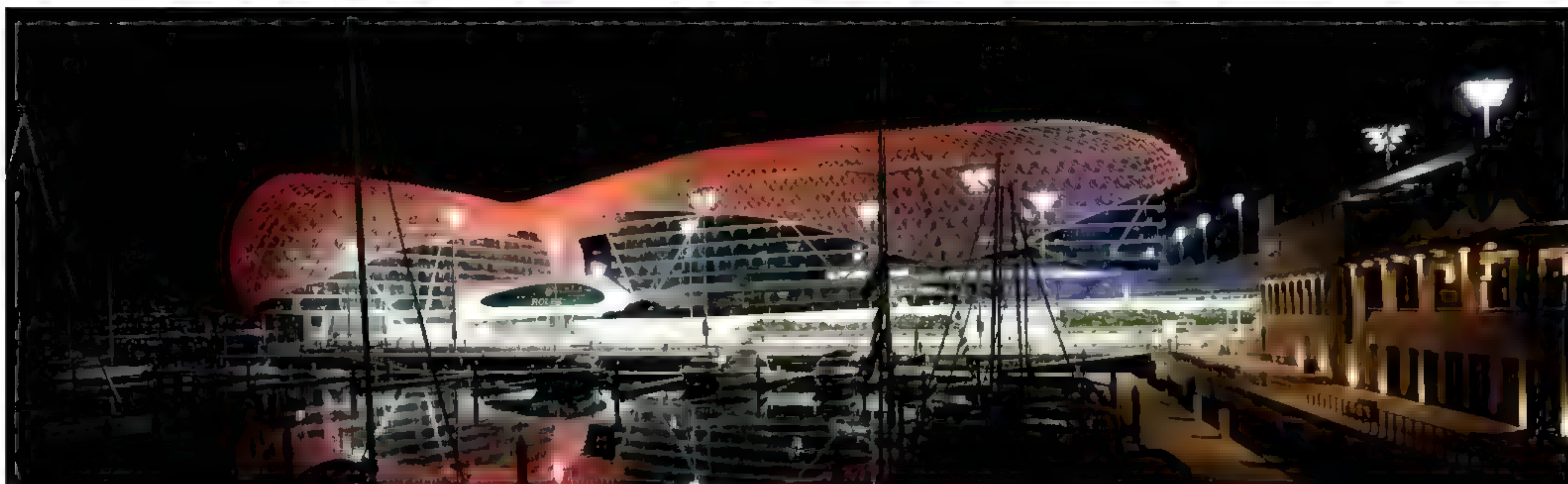
01

Formula 1's announcement of a record 23-race schedule for the 2022 season has proved controversial as the stakeholders struggle to reconcile the commercial advantages of expansion with the inevitable human cost. The calendar includes not one but two of the triple-headers which have caused exhaustion and burnout in the past – and they are arranged back-to-back, separated by a fortnight, which means six races in seven weeks between Belgium and Japan.

F1's first triple-header, in summer 2018, came as a result of the commercial rights holder not wanting an event to clash with the FIFA world cup final, dictating that the French, Austrian and British GPs be held on consecutive weekends. After complaining this left key staff exhausted, teams were assured there would be no repeat the following season. But triple-headers have made unwelcome returns in 2020, 2021, and now 2022, through a combination of factors relating to the pandemic and its economic effects, on top of long-standing structural weaknesses in F1's finances.

Event cancellations and postponements dictated a late start to the 2020 season and a compressed schedule, and similar circumstances have impacted this season's calendar. Next year's slate begins in March, as was planned this year, but ends with the Abu Dhabi GP on 20 November – much earlier than the Emirate's 12 December season-closer this year. Once again this

Abu Dhabi will round off the record-breaking 2022 season, but the 20 November date is a full three weeks earlier than this year's race



PICTURES CHARLES COATES STEVE ETHERINGTON



is because of the football: the FIFA world cup begins in Qatar on 21 November. Adding more races into a smaller timeframe therefore made triple-headers an inevitability.

F1 was carrying a huge debt burden even before Liberty Media acquired the commercial rights from CVC Capital Partners in a deal which involved taking on even more leverage. One of the principal means of servicing this debt is through sanctioning fees for races – but the rate card has declined since the swaggering Bernie Ecclestone era. F1 can no longer squeeze promoters for ever-greater fees – quite the opposite, in fact. The natural solution is to add more races, and the likelihood is the calendar will continue to grow, since China is absent from the 2022 line-up and there is talk of adding another US event, possibly in Las Vegas.

2022 F1 CALENDAR

Bahrain GP

28 March

Saudi Arabian GP

27 March

Australian GP

10 April

Emilia-Romagna GP

24 April*

Miami GP

8 May**

Spanish GP

22 May*

Monaco GP

29 May

Azerbaijan GP

12 June

Canadian GP

19 June

British GP

3 July

Austrian GP

15 July

French GP

24 July

Hungarian GP

31 July

Belgian GP

28 August

Dutch GP

4 September

Italian GP

11 September

Russian GP

25 September

Singapore GP

2 October*

Japanese GP

9 October

United States GP

23 October*

Mexico City GP

30 October

São Paulo GP

13 November

Abu Dhabi GP

20 November

* Subject to contract

** Subject to circuit
homologation

The response from the teams – who, after all, agreed to the calendar – has been mixed. AlphaTauri boss Franz Tost is from the like-it-or-lump-it school, saying: “We all should be happy that we are in a position to be in Formula 1 and to have 23 races. And if someone doesn’t like it, then he should go.”

And Tost’s counterpart at Red Bull, Christian Horner, said, “You could go to Formula 2 and do 12 races and earn half the money.”

While it is true that in the past there was more in-season testing, adding to working hours between races, leading teams operated full-time test squads to ease the burden on race personnel. And McLaren team principal Andreas Seidl pointed out the essential fatuousness of looking at the past through the proverbial rose-tinted optics.

“These were different times, a different generation as well,” he said. “And I wouldn’t necessarily say that it was sustainable, what we had at this time, so for me there’s no point referring to what we did 20 years ago.

“The 23 races we will do next year, they’ll put a big burden on people. It’s great to see the interest from all these different countries and regions in Formula 1. But it’s now down to us, as a team, together with our people, to accept the

challenge, and find ways we can make this race calendar sustainable for our people.”

Drivers also face the prospect of having to learn how to sustain peak performance across a congested schedule which includes several sharp changes in time zones – such as Azerbaijan being back-to-back with Canada.

“I think next year is going to be tough for everyone,” said Carlos Sainz. “It’s no secret that it’s going to be

**“WE ALL SHOULD
BE HAPPY THAT
WE ARE IN
A POSITION
TO BE IN F1
AND TO HAVE
23 RACES”** FRANZ TOST

the most demanding season in F1 history. And as drivers we are going to need to adapt, we’re going to need to make sure we stay on high energy levels, and control a bit the way we do things to make sure we arrive fresh to the end of the year where the back-to-backs start to happen, and where the big travelling days start to happen.”

Are triple-headers here to stay? There are several voices within the teams who would rather they did not.

“We understand there needs to be a level of flexibility from the teams which is why we just have to cope with these triple-headers now,” said Ferrari sporting director Laurent Mekies. “And then once, hopefully, the pandemic is out of the way, we will sit down again and see how to move forward as it’s probably the aspect that is the most taxing for the race team.” ►

'CONTROL ISSUES' PUT BRAKES ON ANDRETTI DEAL

02 Michael Andretti's putative acquisition of Sauber, the company which runs the Alfa Romeo F1 team, appears to have come to nothing, although Andretti still has the necessary financial structures in place to buy another team should one be put up for sale. Andretti, who drove for McLaren in F1 in 1993, is the son of the 1978 world champion Mario Andretti, and his eponymous team is one of the dominant forces in IndyCar racing.

It emerged in October that Andretti was in negotiations to take an 80% stake in Islero Investments, Sauber's holding company, and to do so had established a Special Purpose Acquisition Company (SPAC) last March (see 'Straight Talk', p29). *GP Racing* understands this entity had amassed sufficient funding to table an offer of \$300million for what would be a controlling stake.

The ownership structure of Islero Investments and its parent company Longbow Finance is obscure since the principal figure behind it is the secretive Swedish billionaire Finn Rausing, whose family fortune derives from the patents for Tetrapak. Rausing is known to be a motorsport enthusiast and supported the career of Marcus Ericsson before rescuing Sauber from collapse in 2016.

It is believed that there were differences in opinion between the principal financial backers involved in Islero Investments, since Sauber's value is likely to increase as a result of the financial provisions enshrined in the latest Concorde Agreement. German outlet *Auto Motor und Sport* reported that while the \$300million price had been agreed by both parties, Sauber's owners also sought

Despite getting very close to acquiring a controlling stake in Sauber, which runs the Alfa Romeo F1 team, Michael Andretti has confirmed that the deal is now off...

injections of \$50million per year over the next five years, paid in advance, as a guarantee to keep the team running at the budget cap in case of sponsorship shortfalls. This, it was said, was the deal-breaker. But Andretti has poured scorn on these claims.

"I'd just like to put an end to some of these rumours that the deal fell through because of financial reasons," said Andretti. "That couldn't be further from the truth. It had nothing to do with that. It basically came down to control issues in the final hours of the negotiations. That's what killed the deal. I've always said if the deal is not right, we're not going to do it, and in the end it wasn't right. So we continue to look for other opportunities.

"It had nothing to do with financials or anything like that. Unfortunately, at the 11th hour, control issues changed, and it was a deal that we had to step away from because we couldn't accept it."

Andretti remains hopeful of finding a suitable target for his investment war chest – although it may not necessarily be in F1.

"Our eyes are always going to stay open," he added. "We're always going to look for opportunity, not just there but in other types of racing. That's what we do. We're in the racing business, and we're always looking for opportunities to expand.

"But when we do expand, we have to make sure it's a proper deal we know can be competitive, because that's very important for our brand – to be competitive in anything that we do." ►



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MERCEDES' SUSPENSION OF DISBELIEF

03 The latest fusillade in the war of words between Red Bull and Mercedes ended in a whimper as the FIA found no evidence of a trick 'device' on the W12's rear suspension. Red Bull initially raised the issue with the governing body during the Turkish Grand Prix weekend, where it was observed that the W12s of Lewis Hamilton and Valtteri Bottas were squatting at the rear while running at speed.

As well as lodging a request for a 'clarification' of the supposed device, Red Bull team principal Christian Horner verbalised the claims via *Sky Sports F1*, provoking a whirlwind of excitement. But the FIA's investigations into the matter revealed that not only was Mercedes' rear suspension compliant with the rules, it had not changed since 2020.

Lowering the rear ride height at speed can give a powerful advantage since it can cause the diffuser to stall, theoretically reducing drag. Certainly in Turkey Mercedes seemed to have developed a straightline speed advantage which had been lacking in recent races. But any device which actively drops the rear ride height would be illegal, since it would fall under the remit of a moveable aerodynamic device.

GP Racing understands the Mercedes rear suspension geometry is designed in such a way that the 'third spring', which manages vertical movement of the chassis, offers less resistance once it passes a certain load threshold. Since this system has to be entirely passive to comply with the rules, the trick is in the tuning – applying enough downforce load via the aerodynamic devices to pass that threshold. That process has been complicated this year by new rules cutting off part of the floor area and it has taken Mercedes time to claw back via aerodynamic updates added to the W12 throughout the year.

It's probably that Turkey was an outlier in that the track accentuated the W12's behaviour, an impression bolstered during the US GP weekend when the Mercedes looked slower in a straight line. This, together with the findings of the FIA probe, was enough to persuade Red Bull to drop the matter.

"There were obviously some straight-line speeds that were quite eye-watering," said team principal Christian Horner. "With further analysis we were able to understand how they were achieving that at that type of circuit."

"We're trying to really comprehend our car better and add performance in lap time," said Mercedes boss Toto Wolff, "without listening too much to the noise."

"WE'RE TRYING TO REALLY COMPREHEND OUR CAR BETTER AND ADD PERFORMANCE IN LAP TIME WITHOUT LISTENING TOO MUCH TO THE NOISE"

TOTO WOLFF



At the Turkish GP the rear suspension of the Mercedes W12 got a lot of attention, but the FIA confirmed that it hadn't changed since 2020...

F1 MASTERMIND

Your chosen specialised subject: the world's greatest motorsport

- Q1** How many GPs did McLaren win when its cars were powered by Honda engines: 44, 54 or 64?
- Q2** Kimi Raikkonen joined the 300 GP starts club at which race in 2019?
- Q3** What was Nicholas Latifi's highest grid position in his debut season of 2020: 14th, 15th or 16th?
- Q4** Four different Williams drivers won Australian GPs held at Adelaide. Who are they?
- Q5** Which is the only race that Fernando Alonso has claimed pole position for three times?
- Q6** When was Sebastian Vettel's most recent F1 win and at which GP was it?
- Q7** True or false: Kamui Kobayashi's Formula 1 points tally is greater than the combined points score of all the other Japanese F1 drivers?
- Q8** Up to and including the US GP, two races this season have had five different race leaders. Which GPs are they?
- Q9** Which other circuit in Florida, apart from Miami, has hosted a world championship F1 race?
- Q10** Over the three seasons that Antonio Giovinazzi and Kimi Raikkonen have been team-mates at Alfa Romeo, who has led more laps?



1 44 2 Austrian GP 3 15th 4 Thierry Boutsen, 2000
Nigel Mansell, Keke Rosberg 5 British GP (2005, 2006 & 2012)
6 2019 Singapore 7 True 8 Azerbaijan and Italian GPs
9 Sebting (1959) 10 Giovinazzi (4 to 0)



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people who have to work. 80% of the population is not rich so there is a hunger, it's different from the local youth approach you see in Qatar and the United Arab Emirates."

Khalil's voice is heard across the Middle East but crucially the coverage also extends to North Africa, and his forward-thinking business mentality already has a strong opinion on other potential events. "I think Morocco will come in soon to put in a bid to join F1 because the popularity is growing, the fanbase is bigger in North Africa and Levant countries (such as Lebanon) than in the Gulf countries. Morocco has the money, and the idea is being considered."

Meanwhile, Khalil is developing another idea which has connections to F1 but is a very different animal. In 2018 he saw electric scooters on roads for the first time and realised that the world is changing. "It made us think about creating a race series for e-scooters to develop the technology, the safety, all the elements. The car sector developed through motorsport, so I thought it made sense and spoke to my friend Alex Wurz about it."

Wurz is well regarded in F1 as an ex-racer and current chairman of the Grand Prix Drivers Association. He was unsure about Khalil's

initial concept of e-scooter racing, but a deeper analysis persuaded him to become involved. Other key F1 personnel have been brought in: Andy Mellor, a fundamental part of F1 safety for many years including development of the halo, and ex-Lotus engineer and FIA stalwart Peter Wright are now devising sporting and technical regulations for the eSkootr series, which is due to get underway soon.

Races will take place on 400m city centre circuits around the world, with competitors from a variety of sports. Snowboarders, skiers, bike racers and motocross riders will be among those racing on equipment powered by batteries from Williams Advanced Engineering. Specialist barriers are being designed by TecPro. The whole concept is about developing the micromobility sector, which we could all be using in the near future to cut down on global emissions.

"The idea is to complete the ecosystem of motorsport," says Khalil with relish. "By 2024 many road cars will have a scooter in the boot for the extra mile, so we are kind of completing the circle."

It is unlikely that eSkootr will impact us quite as dramatically as this remarkable F1 season, but it will provide a way for ambitious racers to prove abilities in a highly visible format, and who knows, perhaps one day a young champion of eSkootr from the UAE will switch to F1 and become a race winner at the highest level. Dreams are there to be fulfilled.

NEW HORIZONS IN AFRICA AND THE MIDDLE EAST

A remarkable season of Formula 1 is about to reach its climax in the Middle East, as a trio of races on three very different circuits adds another level of unpredictability.

Firstly, there is the Losail International Circuit in Qatar, which features a technical layout on low-grip asphalt, and a risk of chaos with standing water if wet weather descends.

In Saudi Arabia, at the Jeddah Corniche Circuit, it is our eyes that are likely to water due to the sheer speeds witnessed on a street track. Baku set new levels for pace on regular roads, but the Saudi race is going another step further, with average lap times likely to be faster than at Silverstone, on a track featuring a purpose-built banked corner at the suitably numbered Turn 13.

The final race will play out in Abu Dhabi on a layout that has been subtly altered since last year, opening the door to realistic overtaking opportunities. Prospects for further drama and entertainment are high, but does it feel right that such an amazing head-to-head season is going to

conclude in a part of the world where the culture of motorsport is somewhat superficial?

It is a question that former A1GP racer for Lebanon, Khalil Beschir, understands well. Currently the co-commentator and analyst for MBC Action's F1 coverage in the region, he is all too aware of the naivety of fans in the Middle East. "I get messages on social media every day from people asking how to become an F1 driver or engineer. There needs to be more education, I haven't seen any real programmes in place to help support these followers."

The good news is that levels of interest are soaring, ever since the TV coverage became free-to-air in 2019. "I am convinced that we have the youngest age group watching here in the Middle East," enthuses Khalil, "and the free coverage has helped massively with the popularity of the sport. And the good thing in Saudi Arabia is that the minister of sport, Prince Abdulaziz bin Turki Al Saud, and the promoter of F1, Prince Khalid Bin Sultan Al Faisal, have both raced competitively in GT3 and other motorsport categories. They want to create a programme to support young drivers, sending some to Europe to help them develop."

When F1 first began visiting Abu Dhabi, many of the tickets sold were due to the music concerts that were part of the race weekend. Since then, life has moved on. "That is changing in Abu Dhabi and the whole region," confirms Khalil. "Especially in Saudi we are seeing that people are buying tickets for F1 rather than concerts. In Saudi you have

To improve overtaking opportunities at the season finale, the old Turn 11/12/13 complex at Yas Marina (right) has been altered

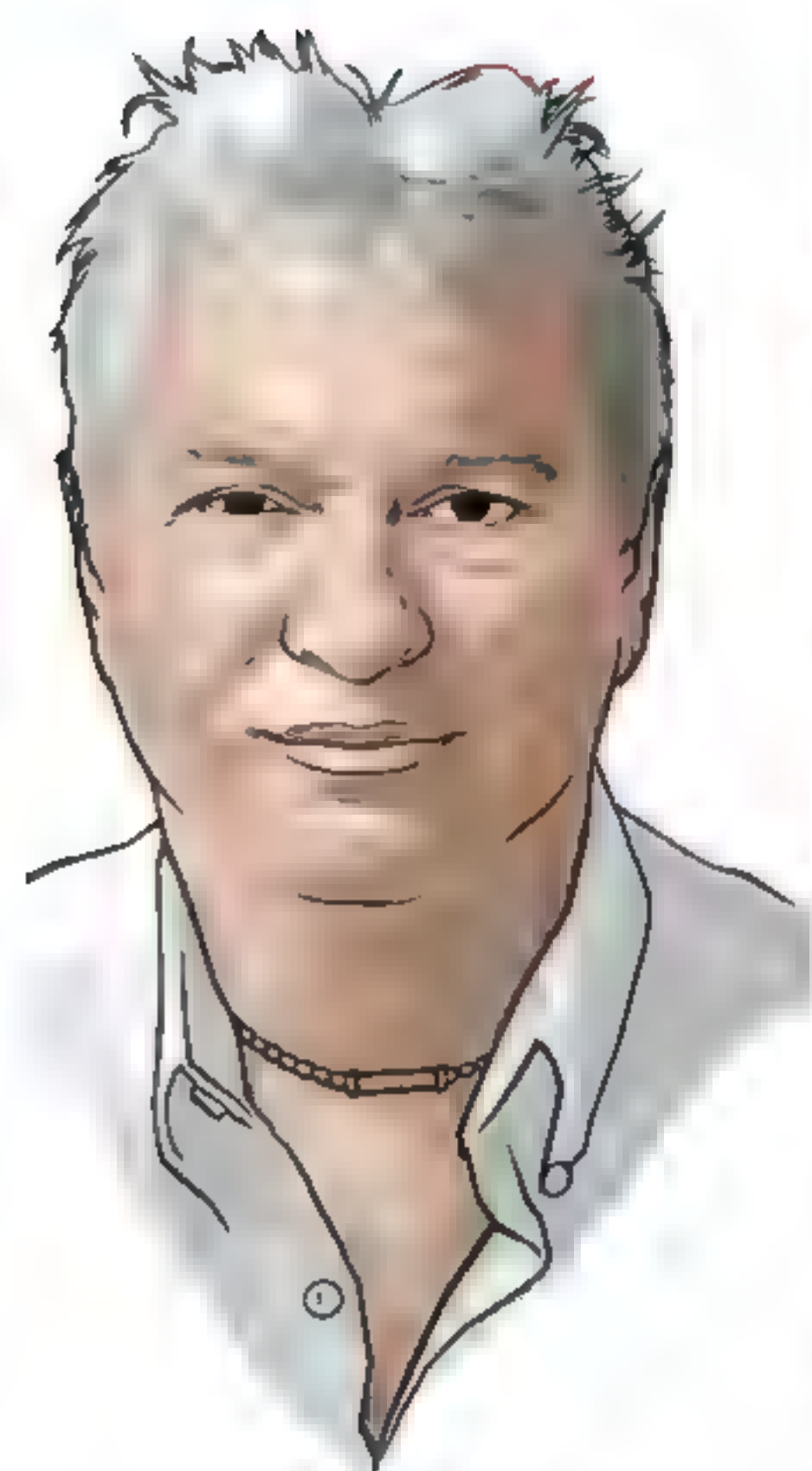


The Qatar GP, at the Losail International Circuit, is the first of the three Middle Eastern races that wrap up the 2021 season



The streets of Jeddah (above and left) will host the first Saudi Arabian GP

PICTURES: ZAK MAUGER (GO.D AND GOOSE) FORMULA 1 ILLUSTRATION: BENJAMIN WACHENHEIM



UNDER THE HOOD

PAT SYMONDS

PICTURES **motorsport** IMAGES

NO ONE SHOULD QUESTION F1'S NEW LIFE-SAVER

The introduction of the halo in 2018 was not met with enthusiasm by fans, teams or drivers. The aesthetics were questionable, and the device contributed to the cars reaching a total weight of 733kg. A significant part of that increase in mass was due to the sizeable chassis structures required to handle the test loads that were necessary if the halo was to function correctly in a severe accident.

I dedicated one of these columns in 2017 to the launch of the halo, arguing that we should be seeking to roll it out in the junior formulae rather than questioning its introduction. I made this point as I truly believed it was going to save lives.

Fast forward to 2021. Like most things to do with appearance, familiarity makes the once monstrous device look perfectly normal – and there is not a driver on the grid who would be happy to drive a car without this protection, its efficacy having been proven several times over the past four seasons.

The spectacular collision with Max Verstappen at Monza this year led Lewis Hamilton to comment that the halo “saved my neck”, and it is probable



Romain Grosjean survived his Bahrain accident in 2020, which might not have been the case without the halo

that without it Romain Grosjean would have suffered potentially fatal injuries in Bahrain and Charles Leclerc might well have been seriously injured when Fernando Alonso's McLaren was pushed on top of him at the first turn at Spa in

2018. It also saved F2 driver Tadasuke Makino from a head-strike with a rear tyre during a collision at Barcelona that same year.

The history of the device goes back nearly nine years prior to its introduction. In July 2009 the death of Henry Surtees was followed just eight days later by the serious injury to Felipe Massa, both as a result of objects striking them on the head. This led to Peter Wright of the FIA asking the World Motorsport Council if canopies as a form of secondary frontal protection should be considered for F1 cars. The initial response was negative, as it was felt that canopies may introduce problems of their own, but in spite of the reservations, by January 2011, a research programme was set up.

Initial proposals were put to the Technical Working Group at the end of March and physical testing began in May.

Again, although canopies were tested, the consensus was that a blade system or forward roll hoop would provide protection for the majority of accident scenarios with minimal downsides in other accidents. This was backed up not just by opinion but by an extremely comprehensive analysis of potential accident scenarios and the effect that a halo device might have on the outcome of each one. This showed overwhelmingly that a form of forward protection had many more advantages than disadvantages.

With parallel development routes of the canopy and the forward roll hoop – which evolved into the halo that we use today – progress was slow but thorough. The practical testing involved firing a 20kg wheel and tyre at the devices using a cannon driven by compressed nitrogen. The wheel assembly impacted at 140mph, resulting in an energy of 40 kilojoules. To put this in context an F1 helmet, which is designed to the highest standards in the world, can only withstand 540 joules in a penetration test, just 1.35% of that achieved by the halo.

In terms of strength, the halo is no less impressive. In order to cope with the high energies experienced during an impact, the halo also must withstand a combined load of around 14 tonnes. This is like expecting a London double decker bus to park on top of it with no damage. Not only does the 7kg halo have to withstand this load, but so too does the carbon fibre chassis just at the ►

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Incidents such as the Hamilton and Verstappen one at Monza (above) and Leclerc and Alonso at Spa in 2018 have also proved the efficacy of the halo

point where it is weakened by the large void of the cockpit opening. This has increased the weight of the bare chassis by around 5kg to somewhere around 70kg. Compare this with the enormous jacks used to lift the weight of that double decker bus – they weigh 2.4 tonnes.

The halo itself is made from Grade 5 titanium and consists of the main 'C' shaped hoop formed from a 50mm tube with 4mm wall thickness, to which are attached the rear brackets and the front fabricated 'vee' transition. The three legs then have the attachment brackets welded on and the whole assembly is then heat treated and final machining carried out. Being titanium, the welding has to be done in a chamber filled with inert gas to ensure the integrity of the welds. The whole assembly, which is 835mm long by 580mm wide, must be held to a tolerance of 0.05mm.

Anyone with experience of fabricating will know this is an incredibly tight tolerance to achieve on a structure like this. Once the halo is fabricated and fitted to the chassis, teams can cover it with a lightweight fairing made of a carbon and Kevlar mix – but the dimensions of this are tightly controlled.

In order to gain homologation, any company manufacturing a halo must

ASK LEWIS HAMILTON OR CHARLES LECLERC WHETHER THEY THINK IT'S GOOD VALUE AND YOU CAN BE PRETTY SURE BEFOREHAND WHAT ANSWER YOU WILL GET

subject a sample to exhaustive testing and each production sample must undergo rigorous post manufacturing inspection.

The precision required and the quality control expected all comes at a price and that price is around €17,000. It might seem a lot of money, but ask Lewis Hamilton or Charles Leclerc whether they think it's good value and you can be pretty sure beforehand what answer you will get.

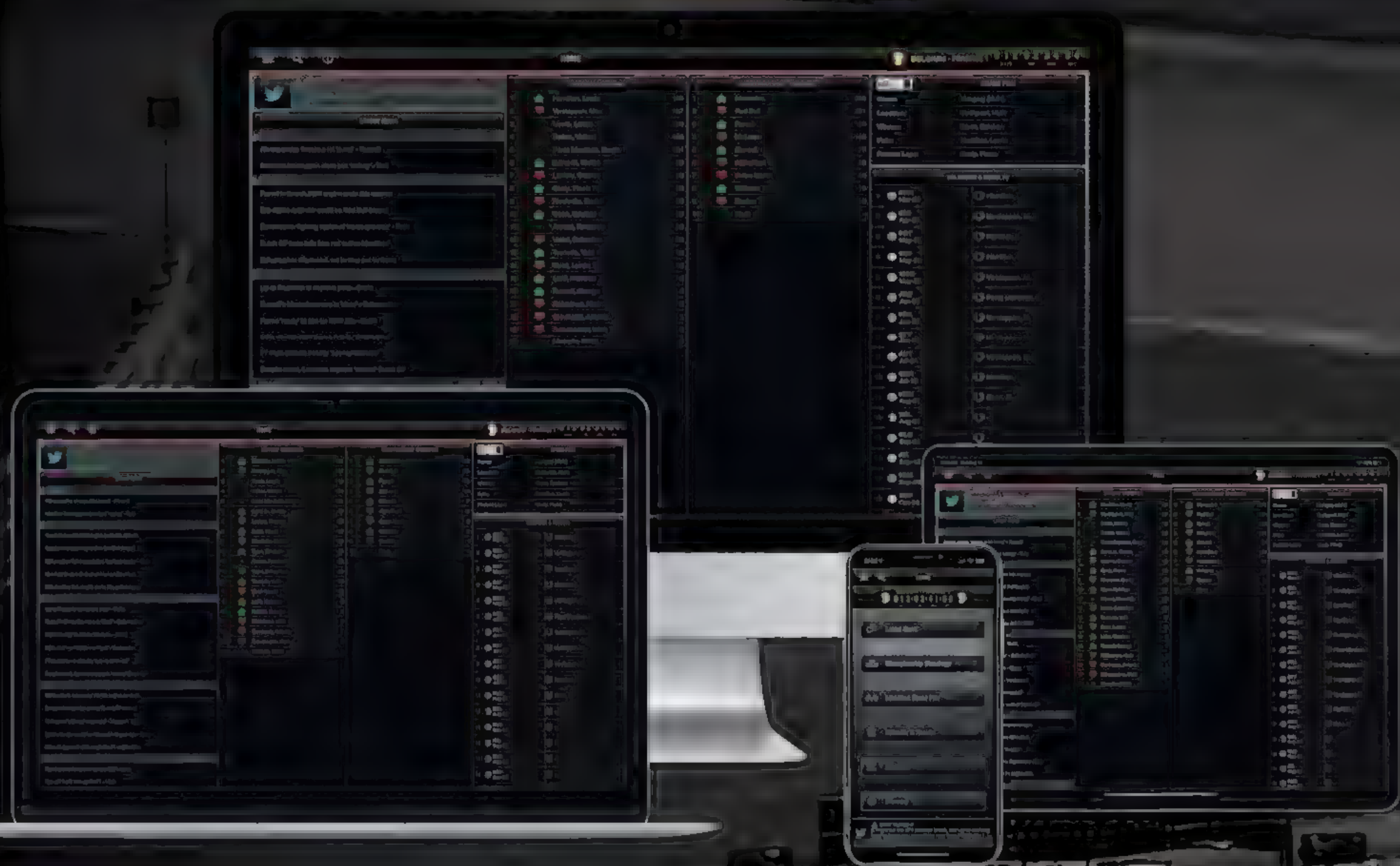


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STRAIGHT TALK

MARK GALLAGHER
 @_markgallagher

IS ANDRETTI AND ALFA THE NEW F1 LOVE STORY?

“What’s in a name?” heralds the start of Juliet’s famous soliloquy in Shakespeare’s romantic tragedy detailing her ill-fated romance with Romeo, doomed by feuding families.

Andretti is certainly a name, one which carries with it half a century of racing heritage thanks to the brilliance of the man who heads the dynasty, 1978 world champion Mario. Son Michael has been attempting to secure a marriage with a Romeo, of the Alfa variety, through a purchase of Sauber.

On the other side of this attempted love-match is another family of renowned wealth and influence, namely the billionaire Rausing of Tetrapak fame. Finn Rausing is central to Longbow Finance, the investment firm which acquired Sauber in 2016.

A letter of intent between the two parties has so far failed to result in a successful takeover. However, the thought of the Andretti name returning to F1 makes for an enticing prospect. One which the Formula One Group and its owners at Liberty Media will be only too eager to see happen.

Liberty Corporation’s CEO Greg Maffei posted

delighted tweets about the crowds gathered for the US GP at Austin. Some reports put the three-day total attendance at close to 400,000 – a new record for F1 if so. That success occurred against the backdrop of the inaugural Grand Prix in Miami, now just months away, a rumoured deal with Las Vegas, and the ‘Netflix Effect’ of the *Drive To Survive* series fuelling accelerated TV audiences across the pond.

Seldom has there been a better moment for an authentic, all-American team to break into Formula 1.

What of Haas, you may well ask? A team which arrived with a bang in 2016 – finishing inside the top six in its first two races – now finds itself wrapped in the Russian flag, languishing at the back on zero points. If it weren’t for the redeeming presence of Mick Schumacher and the passionate leadership of the amusingly swearsy Guenther Steiner, things would be even tougher. Sponsorship is sparse.

I was once asked by a well-known British billionaire why his team was failing to attract sponsorship. After spending an hour being shown voluminous press cuttings, each of which described the team as being funded by the aforementioned billionaire, I explained that

he was the problem.

No company wants to sponsor a rich man’s plaything. It is one reason why we never see Dietrich Mateschitz standing in front of Red Bull, and it may well be an issue for Gene Haas. There are plenty of American sponsors in F1, but they are not sponsoring his US team.

Michael Andretti is no billionaire, but his Andretti Autosport business is both American and astute. It sports an impressive array of motor racing programmes, stretching from Indycar and Indy Lights through to Formula E, Extreme E, Australian Supercars and IMSA.

To fund a potential F1 acquisition Andretti, together with Co-CEO William Sandbrook, established Andretti Acquisition last March. This is a SPAC – a Special Purpose Acquisition Company – registered with the US Securities and Exchange Commission. It is a shell company into which investors put money. While a traditional stock market flotation (an IPO) helps companies looking for money, a SPAC creates money looking for a company. The caveat is that the money has to be returned after 24 months if no deals are struck.

Andretti Acquisition, supported by Royal Bank of Canada Capital Markets, set out to raise USD\$287.5m, and while the negotiations with Longbow may have temporarily stalled, Andretti’s ambition and funding are looking for a home.

They’re an attractive suitor.



Michael Andretti (top), through his Andretti Autosport business, has a huge portfolio of motorsport interests and is looking to add F1 to it by buying the Sauber-run Alfa Romeo team (above)



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LECLERC IS A DRIVER WHO WOULD
HAVE BEEN VERY MUCH TO MY FATHER'S
LIKING, AN INTELLIGENT FELLOW, GIFTED
WITH INCREDIBLE TALENT IN EVERY
RESPECT, HIGHLY CONCENTRATED.
IF WE GIVE HIM THE RIGHT CAR, HE
WILL GIVE US A LOT OF PLEASURE

PIERO FERRARI

Humble yet blisteringly quick, **Charles Leclerc** is the driver Ferrari sees as its next world champion, and a rightful heir to the greats of Ferrari's past - even though, by the team's own admission, he's not the finished article yet.

WORDS ANDREW BENSON

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AND FERRARI

PIERO FERRARI HAS LONG BEEN AN UNDERSTATED presence at the heart of the company founded by his father Enzo. Although powerful behind the scenes, Ferrari's vice-chairman has preferred to keep a low profile in public in the 33 years since his father's death.

So when Ferrari makes a statement in public, it carries real weight. Recently, he chose the occasion of an award ceremony held in his honour to lavish praise on Charles Leclerc.

The 24-year old, Ferrari said, "is a driver who would have been very much to my father's liking, an intelligent fellow, gifted with incredible talent in every respect, highly concentrated. If we give him the right car, he will give us a lot of pleasure".

From a team founded by and operated in the image of motorsport's most celebrated figure, that is quite a statement. It places Ferrari's current lead driver in the lineage of the legends of the team's past, drivers who achieved great things whether or not the cars were at the very highest level – Tazio Nuvolari, Niki Lauda, Michael Schumacher, Fernando Alonso. And most of all, given the history behind Ferrari's remarks, Gilles Villeneuve.

Villeneuve carved an indelible place in F1 history for his daring and remarkable feats at the wheel of a Ferrari from 1978 until his death in 1982, at a time when the team was rarely absolutely competitive. He was the greatest driver of his day, one of the fastest of all time, and he had a special place in Enzo Ferrari's heart.

"The one that Enzo Ferrari liked the most was Gilles Villeneuve," says Ferrari's team principal, Mattia Binotto, explaining Piero Ferrari's remarks. "In his way of driving, he was always very spontaneous and fresh."

"He gave everything he had to deliver the most, and was crazy enough and capable of doing outstanding qualifying laps. And so he is one of these drivers that create the passion in the tifosi. Because he was really doing his best always."

Leclerc, Binotto agrees, is made in the same vein.

"If I look at the tifosi today, certainly Charles is reflecting that type of spirit. And no doubt that will become even more true when he will start winning championships."

Some may balk at the idea of comparing a driver who has only two wins

Leclerc's defensive skills were demonstrated early in his Ferrari career during his battle with Verstappen at Silverstone in 2019



PICTURES: MARK SUTTON, GLENN DUNBAR, ZAK MAUGER, FERRARI

Leclerc's scrap with Verstappen at the 2019 British GP continued when the pair exited the pitlane after they had stopped on the same lap

to his name with those whose feats are part of the fabric of motorsport history, but Leclerc has already done enough to demonstrate he has that sort of potential.

His brief, four-year career has been punctuated by spectacular performances. Whether it's taking a Sauber to unfamiliar places in his debut year in 2018; demolishing Sebastian Vettel's position as team leader in his first season at Ferrari; or a series of reality-bending qualifying laps, such as the wild and spectacular one that took pole at Singapore in 2019, or the smooth and clinical one that put him fourth on the grid at Sakhir in 2020, a place the car had no right to be.

Leclerc has even raced like Villeneuve, in the remarkable duel with ▶



"IF I LOOK AT THE TIFOSI TODAY, CERTAINLY CHARLES IS REFLECTING THAT [VILLENEUVE] TYPE OF SPIRIT. AND NO DOUBT THAT WILL BECOME EVEN MORE TRUE WHEN HE WILL START WINNING CHAMPIONSHIPS"

MATTIA BINOTTO



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Fresh from his Belgian victory in 2019, Leclerc sent the tifosi wild at Monza, holding off Hamilton and then Bottas for win number two

Max Verstappen at Silverstone in 2019, which carried echoes of the famous battle between Gilles and René Arnoux at Dijon in 1979, or Leclerc's race-long defence against Lewis Hamilton on his way to victory at Monza in 2019.

In these moments, and in the consistency of his performances, Leclerc is already justifying Ferrari's decision at the end of 2019 to sign him to a five-year contract. That deal was a major statement – it was F1's biggest team investing its hopes in Leclerc after he had done just two seasons in F1, as the man to carry its hopes into the medium-term future.

Only the very best drivers earn themselves this sort of commitment from Ferrari – in the last 30 years, only Schumacher and Alonso have had contracts that rival the length of Leclerc's.

"That is what is distinguishing talented drivers from good drivers," Binotto says. "If you are an outstanding, talented driver, you are capable of

"HE HAS A LOT OF STRENGTHS THAT MAKE HIM SUCH A STRONG DRIVER, AND I AM LOVING THE CHALLENGE, TO BE HONEST, BECAUSE I KNOW THERE IS NO ONE BETTER THAN HIM PROBABLY ON A SINGLE LAP WITH A FERRARI FORMULA 1 CAR"

CARLOS SAINZ

extracting the most from the car and doing a fantastic lap. And that was the case of Michael and Fernando.

"If there is anything different with Charles it is that those ones were world champions who had already proved in F1 to be talented, which Ferrari engaged. With Charles it has been a different story, because Charles has been with us since the very start and it has been great from Ferrari to find that talent. Charles has got it, no doubt."

Leclerc brushed aside Sebastian Vettel in 2019, although the four-time world champion might have been a little de-motivated...



PICTURES ANDY HONE MARK STITTON

New team-mate Carlos Sainz is generous in his praise of Leclerc and is well aware of the challenge he faces to match him

That Leclerc is one of those rare and special talents has been clear pretty much from the moment he stepped into a Formula 1 car.

Placed at Sauber for his debut after several years with the Ferrari Driver Academy, Leclerc had a slightly wobbly first three races in 2018. But thereafter he destroyed team-mate Marcus Ericsson, out-qualifying the Swede by an average of 0.6 seconds over the season 17 times to three and scoring more than four times as many points.

That was more than enough to convince Ferrari that it should go ahead with its plan to replace Kimi Räikkönen and parachute Leclerc straight into the second seat alongside Vettel in 2019. The idea was to benchmark the German, whose performances in his title campaigns against Lewis Hamilton in 2017 and 2018 had been error-prone and erratic. That it was even considered as a plan speaks volumes for the level of talent Ferrari already believed Leclerc possessed.

In his first season at Ferrari, alongside a four-time world champion who is statistically the third most successful driver of all time, Leclerc emerged on top on every single metric: six poles to Vettel's one, ahead in qualifying 12 times to nine at an average of 0.111s, two wins to one (which would have been three-nil had not Ferrari inadvertently undercut Vettel ahead of Leclerc in Singapore when it didn't mean to) and ahead by 24 points in the championship.

Their second season, albeit one in which Vettel's heart was perhaps not in it after being told he was surplus to requirements at Ferrari, was a whitewash. And although Carlos Sainz has been extremely impressive in his debut season at Maranello, there is no doubt who has been the leading driver: Leclerc was ahead 11-4 in qualifying at the time of writing at 0.164s, and on points despite some bad luck which limited his scoring.

Sainz is well aware of the scale of the challenge he faces as Leclerc's team-mate. "I think he is the best qualifier on the grid," Sainz has said. "He is one of the greatest if not the greatest talent in F1 now, and I am actually getting to learn now why he is performing at such a high level.

"It is not only speed. He also has a very good work ethic. He is very good at team building. He has a lot of strengths that make him such a strong



Jock Clear says Leclerc's mental strength is his greatest asset, beyond his ability to drive the car extraordinarily fast

driver, and I am loving the challenge, to be honest, because I know there is no one better than him probably on a single lap with a Ferrari Formula 1 car."

Leclerc has shown fortitude out of the car, too. Before he had even arrived in F1, he had faced the death of his father Hervé and his godfather Jules Bianchi. Rather than give him pause, Leclerc says these losses simply strengthened his desire to succeed. Bianchi suffered horrific injuries in his crash at Suzuka in 2014. Leclerc's response was to race on in his honour.

Perhaps it should therefore be no surprise, then, that when Ferrari engineer Jock Clear, who works closely with Leclerc, is asked about the driver's qualities, speed is not the first thing he mentions.

"If you say 'These are the drivers I've worked with, put your finger on the one element that really shines through,' Clear says, '[it's] mental strength certainly with Charles. [He's] quite astoundingly strong mentally. Because he is who he is and he has done what he's done in the last two or three years, it's easy to forget that coming in as an official Ferrari driver at that age [21] has got to be intimidating.

My word, it's got to be intimidating stuff.

"There's times when he hasn't been the quickest driver, there's times when he's struggled, he's had races when he's chewed through his tyres twice as quickly as his team-mate. So it's not just that he's quick.

"Yes, he's super-quick and we've seen how good a qualifier he is. I think qualifying is a good example of mental strength because actually qualifying is an occasion where you've got to perform. It's a bit like taking the penalty at the end of the Euros. That is pressure. You've got to deliver now. There's no 'that wasn't great but the next one will be all right.'

"But [it's in] all sorts of behind-the-scenes conversations and stresses that he's been under that I'm really, really impressed at how little they impact him come Sunday afternoon."

Binotto also confirms there was a lot more to Ferrari's decision to back Leclerc as its man than just pure speed.

"The reason was first that we know him since the start of his career; he is a very talented driver," he says. "That is the top priority. He is very fast. And not only on a single lap, but when he is in the race situation; the way he is capable of defending and attacking without losing pace is something which is outstanding. I have always in mind Monza 2019. The way he defended the position (against Hamilton) was outstanding, or Silverstone with Max.

"He is really strong in managing the pressure. He is capable of winning because he has that winning mentality that is required when you are ahead, managing the pressure, managing the situation and the way that he is somehow even controlling the race sometimes in overtaking or defence. He has got a fantastic talent.

"Second, he is a great guy – fresh, a lot of empathy with the team, myself with him, and that is something that makes things easier.

"And the way I can see him today managing tyres in the race, incredibly different and better compared with the past when he started. Which means do not wear out the tyres excessively, understand where and when you can push, where you need to save. In that respect, he really has developed his sensitivity to the car and the tyres in an outstanding way."

Despite the high regard in which Ferrari holds Leclerc, though, it is more than happy to admit that he is not yet the finished article.

Leclerc's style, the way he always pushes right to the edge, is what helps produce those 'how-did-he-do-that?' moments in qualifying which have become so commonplace. Every now and again it leads to a mistake, ▶

"HE IS REALLY STRONG IN MANAGING THE PRESSURE. HE IS CAPABLE OF WINNING BECAUSE HE HAS THAT WINNING MENTALITY THAT IS REQUIRED WHEN YOU ARE AHEAD, MANAGING THE PRESSURE, MANAGING THE SITUATION AND HE HAS GOT A FANTASTIC TALENT"

MATTIA BINOTTO

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Tied to a long-term contract, Leclerc is the driver Ferrari is pinning its hopes on for success when it produces a title-winning car



but he is never one to make excuses – quite the contrary, he has shown a very high degree of self-criticism, often berating himself in front of the television cameras afterwards.

“It is something which is well appreciated,” Binotto says. “If you have the humility to do such, it means you have a big self-confidence and strength.

“But sometimes I am discussing that with him because I believe it is not always right to do it, certainly to do it live, because it is not always his own responsibility. It is a team responsibility, of which he is part. So I always told him: ‘You should never say, “That’s my fault.” You should say: “That’s our fault, the team.”’”

Binotto sees other areas out of the car that Leclerc can work on, too.

“In the last seasons, he developed himself a lot in terms of driving an F1 car,” Binotto says. “There is as well a lot that can be done back at Maranello, meeting with the team and engineers and supporting the team in development. That is a matter of experience, of putting in effort but doing the exercise, re-doing the exercise and trying each time to do it better.

“His capability of addressing issues, in terms of feedback, in terms of support to the engineering team, has been quite a lot better than the past but there is still room for improvement. In order to give good feedback, you need a good feeling and sensitivity to the car behaviours, which he has got. As he is very talented, he has a fantastic feeling for the car.

“THERE IS NO SUBSTITUTE FOR ACTUALLY BEING IN THAT POSITION. THAT IS A DIFFERENT LEVEL OF PRESSURE. BUT ALL I CAN SAY IS HE’S MANAGED AND COPEd WITH EVERY OTHER LEVEL OF PRESSURE SO FAR. AND, YEAH, HE’S MADE MISTAKES, BUT ALL DRIVERS ARE GOING TO MAKE MISTAKES”

JOCK CLEAR

“And then it is a matter of translating the feeling you’ve got into the right engineering feedback. That is a matter of vocabulary, of finding the right words, of interacting, of sitting there, understand, compare. It is a matter of exercise. He is improving a lot in the way he is giving feedback.”

If and when Ferrari produces a car capable of challenging for the title, it is Leclerc who will be leading the campaign. The team may see a few rough edges which need smoothing off, but already it believes he is more than capable of going toe-to-toe with the likes of Hamilton and Verstappen when the opportunity arises.


Clear, who has also worked with Hamilton, Schumacher, Nico Rosberg, Jenson Button and Jacques Villeneuve in a long career, says: “My initial reaction is ‘God, yes, he is absolutely ready.’ You have to balance that with [the fact] there is no substitute for actually being in that position. That is a different level of pressure. But all I can say is he’s managed and coped with every other level of pressure so far. And, yeah, he’s made mistakes, but all drivers are going to make mistakes.

“We know very well that Max has made lots of mistakes in his earlier career, but nobody’s telling me that Max isn’t ready to win a championship. So far, Charles has met every challenge and been up for it and been strong enough to move forward from those mistakes.

“If you’re put in a position where you’re going to be challenging for a championship, it’s going to be against Max, it’s going to be against Lewis. It’s going to be tough. You are going to slip up, you are going to make a mistake, you are going to drop some points. But will he cope with that? Yes, he absolutely will cope with that.

“He’s not going to crumble when he drops it in qualifying and has to start from P13 or whatever. He’ll just swallow it and deal with it and the next race he’ll come back and put it on pole.”

And Binotto has no doubt that Leclerc can be a driver of the very highest level for Ferrari.

“We are fully convinced, and that’s why we invested with him in the future, signing a contract which is a long-term contract, and it is the longest we have ever had in our history. We really invested long-term because we are fully convinced he will be the man and the driver who can bring us there and become the next world champion.” 

Andrew Benson is BBC Sport’s chief F1 writer

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BEFORE AND AFTER

BY BEN ANDERSON PICTURES



motorsport

AND WITH ROBINO

It is difficult to fully appreciate exactly what Robert Kubica has been through during the past decade, until you spend time talking to him. And even then, even with the most sympathetic ear, you cannot really know how he did it – how this man dragged himself from the depths of despair back onto the Formula 1 circuit.

The only person who really does know is Robert himself – a fact that becomes stark as he reflects, with refreshing candour, on the remarkable journey he's undertaken since the accident that stalled an enormously promising racing career, and almost ended his life.

We've ostensibly been brought together to talk about his current stint at Alfa Romeo as reserve driver, and his recent cameos as a race driver, standing in for Kimi Räikkönen at the Dutch and Italian Grands Prix.

But the conversation takes an unexpected turn when *GP Racing* asks Robert to compare the standard of driver he is now to the one before his accident. What follows is a fascinating insight into the power of one man's gritty determination, will to succeed, and the untapped power of the human mind.

"Well, first of all, it is impossible really to compare," he says. "The difficulty, especially in F1, for me was that when I came back after many, many years, F1 was completely different. From one side, I have been an experienced driver, but honestly, I was as a newcomer. But the primary difficulty was that it was a tough year for Williams. I miss a possibility of, let's say, just driving and driving with something which is

It's easy to look at **Robert Kubica's** second F1 career and feel a sense of sadness that he didn't reach the heights he seemed destined for. It transpires performance and results are almost meaningless in this context – something more fundamental and incredible happened...

reliable, something which is competitive.

"Formula 1 has changed so you cannot compare. Before my accident, I had extremely strong years, especially in 2008 and 2010. Probably my best year was 2010 with Renault, I really put a strong season, a consistent season. It's impossible to compare and to be honest, I don't really remember how I was, and this I'm saying is very positive, because with my limitations I had to accept how I am, I had to find a way of driving, find the way of achieving results in a different way. Because in many, many occasions, and I'm not saying only of driving a race car, but in daily life, I can do nearly everything, but in a different way.

"And this was fundamental to switch as a mental strength because in the beginning, after my accident, I was trying to do things exactly the same as I was doing before the accident – and I couldn't achieve it. And I was getting upset, I was... you know, it was disappointing.

"I'm happy that I don't remember how I was, because it means that I have done a good job on this topic and my brain accepted how I am now. Of course, from outside it looks completely different because I can put myself into the situation, or into [the shoes of] even spectators, fans, you know, it's not normal to see someone with these limitations driving a race car. But this is how I am, this is my life. And unfortunately, I cannot change it. I have to accept it. And I have to go forward with it."

Kubica endured three months of emergency treatment as doctors battled to repair his right ▶



arm and hand – and deal with the consequences of multiple fractures to both of his right limbs, the consequence of a rally crash in early 2011. Then followed a long, hard road to recovery, culminating in a return to F1 in 2019. The process has been anything but smooth, but Kubica appears now to be at peace with himself in a way he wasn't when he first made his comeback. The return to racing in F1 with Williams was sobering,

"I FOUND MYSELF MANY THINGS LEARNING FROM ZERO, YOU KNOW, AND MY BRAIN HAD TO ADAPT, HAD TO DISCOVER"

but Kubica has since broadened his horizons. Driving Alfa Romeo's 2020 car in pre-season testing opened his eyes to how modern F1 should feel – "Barcelona had three corners less than I was used to in 2019" – and he's also since tried his hand at DTM, Le Mans and the European Le Mans Series, which he won this year with Team WRT alongside Louis Delétraz and Yifei Ye in an Oreca LMP2 car.

But never mind what could and should have been in F1, the mere fact Kubica can race competently and competitively at such a high level again at all – as evidenced by his performances in Alfa Romeo's Formula 1 car with minimal practice running at Zandvoort and Monza – represents a staggering feat of human perseverance.

"In every sport, and not only sport but in daily living, we underestimate how powerful a tool is our brain," Robert continues. "Often, also, we think there are some limits, but actually it is ourselves who are putting, unconsciously, this limit because of our brain."

"Sometimes it takes more energy out, sometimes it takes more time, sometimes it takes actually learning from zero. After my accident, some things I had to learn from as [though I was] a kid. The difference is that when you are kid and you are growing up, and you are putting your first steps, or first time cycling, you don't remember it because things are so active."





P. CTURES: ANDY HONE; ALFA ROMEO

"I found myself many things learning from zero, you know, and my brain had to adapt, had to discover. I had to learn also my body. I have been right-handed. Suddenly, once the emergency period was gone and I started my daily life, after many operations, after being in the hospital, after being on the wheelchair, I start putting first steps as a kid, because actually it's the case that for many, many months, I haven't walked. And when you stand up after many months, you kind of forget how to walk, or it is not anymore natural.

"You understand then that we do everything naturally. And it's the same for driving. I went very wide road to let you understand that driving is natural. For me, driving the car now, I don't know how I do it. Because it's natural. I'm sure if I asked you how you are cycling, or how you are walking, you don't know – you walk, you don't think about. It's the same [for me] with driving.

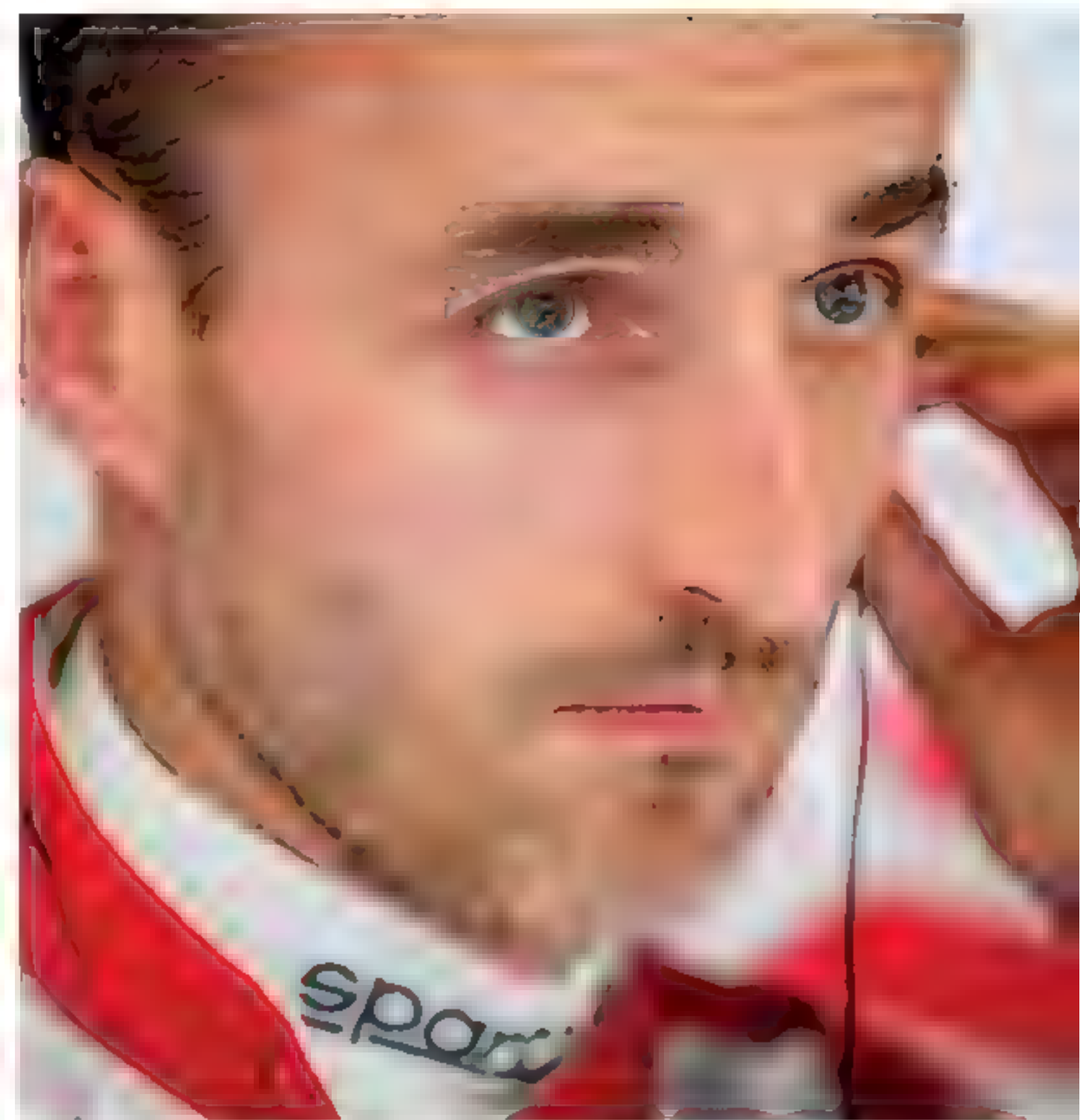
"My biggest achievement, I think, was when I was doing first steps in [coming back to] F1. Everyone was pointing at my limitations. And it has been probably my biggest battle. I heard so many stories that I could not do this, I could not do that. It's impossible. There were people saying, 'he cannot do the first lap after the start'. It's normal because it's not a common thing and people don't really understand, because they have never been in the situation.

"That's why when I say I want to learn my body, or let's say learn from zero, also to understand what is possible, what I can achieve. And all the process of coming back to F1 was much more... not complex, but I never did two steps, I did only one step [at a time] and a very small one – also to not create the expectation on myself, or the hope of for sure I will return.

"No. First I did simulator, then Formula 3, step by step I put my body into these situations which were normal for me before the accident, and the biggest results I got on my rehabilitation were actually when I started driving and I started doing it frequently, because probably [for] my body it was my environment, like being home, and you feel natural in your environment. It's like a fish out of the water – I have been racing, driving, karting since I'm six, so driving, living motorsport is my kind of lifestyle, but it's also where I feel mostly at home.

"I remember when I first tested an F1 car with Renault in Valencia, I knew before jumping in the car that I could do it physically, because I could prepare myself, but I had a big question mark of my mental capacity because I have been away from the sport very, very long.


"And then, after two, three laps in Valencia, it probably was one of my best days in my life



Kubica's recent two races for Alfa were just part of a long journey of recovery

– just from an emotional point of view just to realise that wow, I really can do it. It was kind of relief. But then of course, you know, one thing was to do 20, 30, 60 laps, I did more than this, in Valencia, but then the higher you go the more difficulties you get – but I always kept the focus, but also I was very realistic, I will never force myself or try to be back in F1 car if I will not feel I can do it, and I'm not saying here from performance point of view, but just from physical aspects with my limitations.

"And that's why when I had these stories... actually, I knew before going to Monaco in 2019 – I knew in 2017 after all the tests – I knew Monaco will be one of the easiest tracks for me. People will think opposite. And then you understand that... you are by yourself in this situation. Nobody really can judge, and you are the only one who can really judge 'Yes, I can do, no I cannot do'."

He is realistic about what the future holds – "I am not a dreamer" – and accepts his days of racing full time in Formula 1 are most probably over, but whatever he does next Robert Kubica 2.0 deserves credit for turning a story of near-tragedy into one of astounding resilience and inspiring transformation. This is a driver who undoubtedly deserves the utmost respect. 



RICCIARDO'S ROCKY ROAD TO RECOVERY

From being lapped by his own team-mate in Monaco to winning at Monza, it's been a tumultuous season for Daniel Ricciardo – and there's more to the story than having a nice summer holiday...

STUART COOLING
motorsport
IMAGES

Few images encapsulate the first half of Daniel Ricciardo's eventful 2021 season quite so graphically as the footage of him climbing out of the cockpit after dragging his wounded McLaren to 12th (on the road) in the Hungarian Grand Prix. Or, rather, pausing halfway through the manoeuvre with his head slumped disconsolately against the car's halo for what seemed like an age.

After two seasons with a Renault team which habitually overpromised and under-delivered, Ricciardo made a high-profile move to McLaren

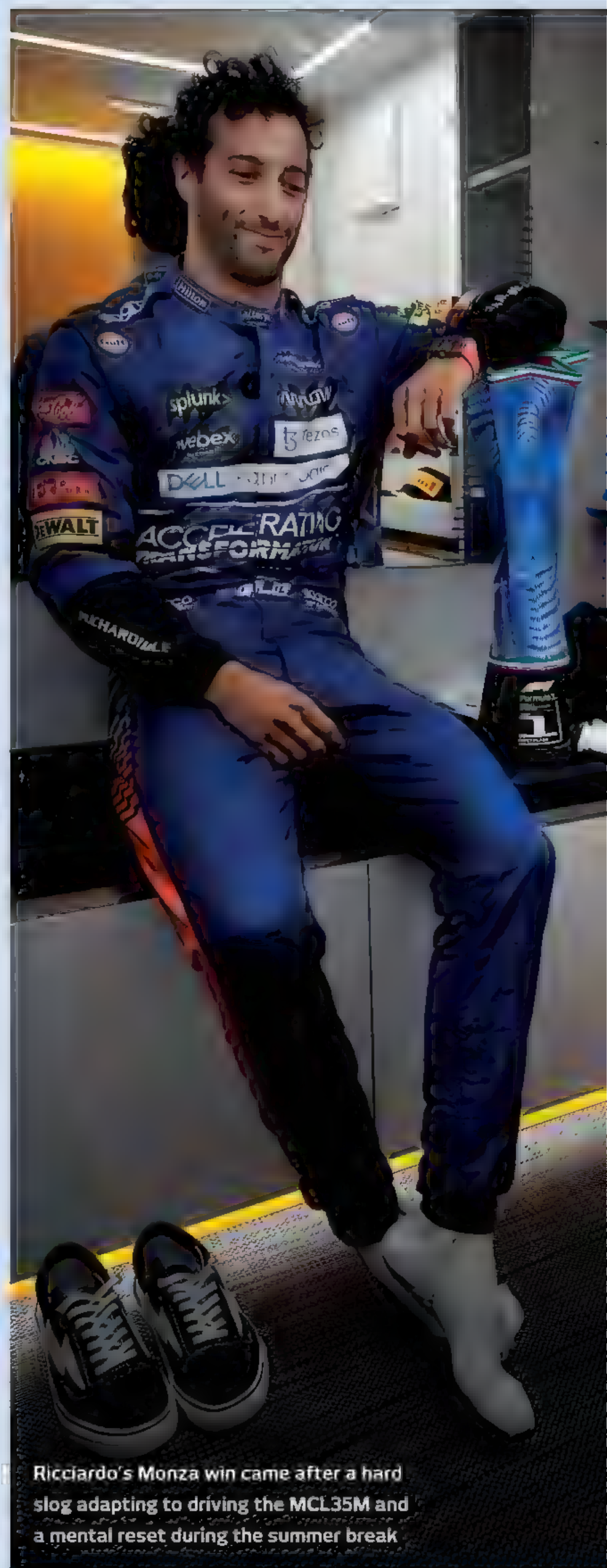
for 2021 which should have provided him with a performance upgrade. And yet, after a relatively bright start in the Bahrain season-opener, disappointment piled upon disappointment as Ricciardo struggled to get to grips with an MCL35M chassis in which understeer is the predominant characteristic. Team-mate Lando Norris adapted quicker, perhaps benefitting from a year's experience with the car's predecessor, and the gaps in lap time between the two drivers grew to distances Ricciardo himself felt unbridgeable; in Monaco Ricciardo was eliminated in Q2 while Norris came within three tenths of the pole time. After similar circumstances eventuated during qualifying for the Austrian GP Dan described the deficit as a

"mystery" because he felt "at the limit of everything".

Solving that mystery required Ricciardo to sacrifice a few sacred cows. Adapting to a new way of driving the car required months of chipping away at the margins, scrutinising the data together with race engineer Tom Stallard. Then, after a refreshing break and mental reset over the summer, Ricciardo came back stronger for the final leg of the European season, culminating in that memorable win at Monza –

McLaren's first victory since 2012.

He qualified fourth in the wet for what ultimately turned out to be a non-race at Spa-Francorchamps, but that was merely a prelude to the Italian Grand Prix >



Ricciardo's Monza win came after a hard slog adapting to driving the MCL35M and a mental reset during the summer break

"I CAN'T SAY THAT ON THE FRIDAY I WAS CONVINCED I WAS GOING TO WIN, BUT IF I LOOK BACK THROUGH



Monza is one of Ricciardo's favourite tracks, and his reward for victory was a run in Zak Brown's ex-Dale Earnhardt Chevy Monte Carlo (opposite page)

PICTURES GLENN DUNBAR STEVENTEE

THE WEEKEND, AM I SURPRISED HOW THE WEEKEND ENDED? HAND ON HEART I'M NOT SURPRISED

weekend. There, not for the first time this year, qualifying left him behind Norris and in a frustrated frame of mind – but this time he was just 0.006s off his fourth-placed team-mate and less than half a tenth slower than third-placed Max Verstappen. Ricciardo would later say the anger at being so close to the cars in front spurred him on to achieve what happened next: third place in Saturday's 'F1 Sprint', which became second on the grid for the grand prix (following a penalty for Sprint winner Valtteri Bottas), followed by victory.

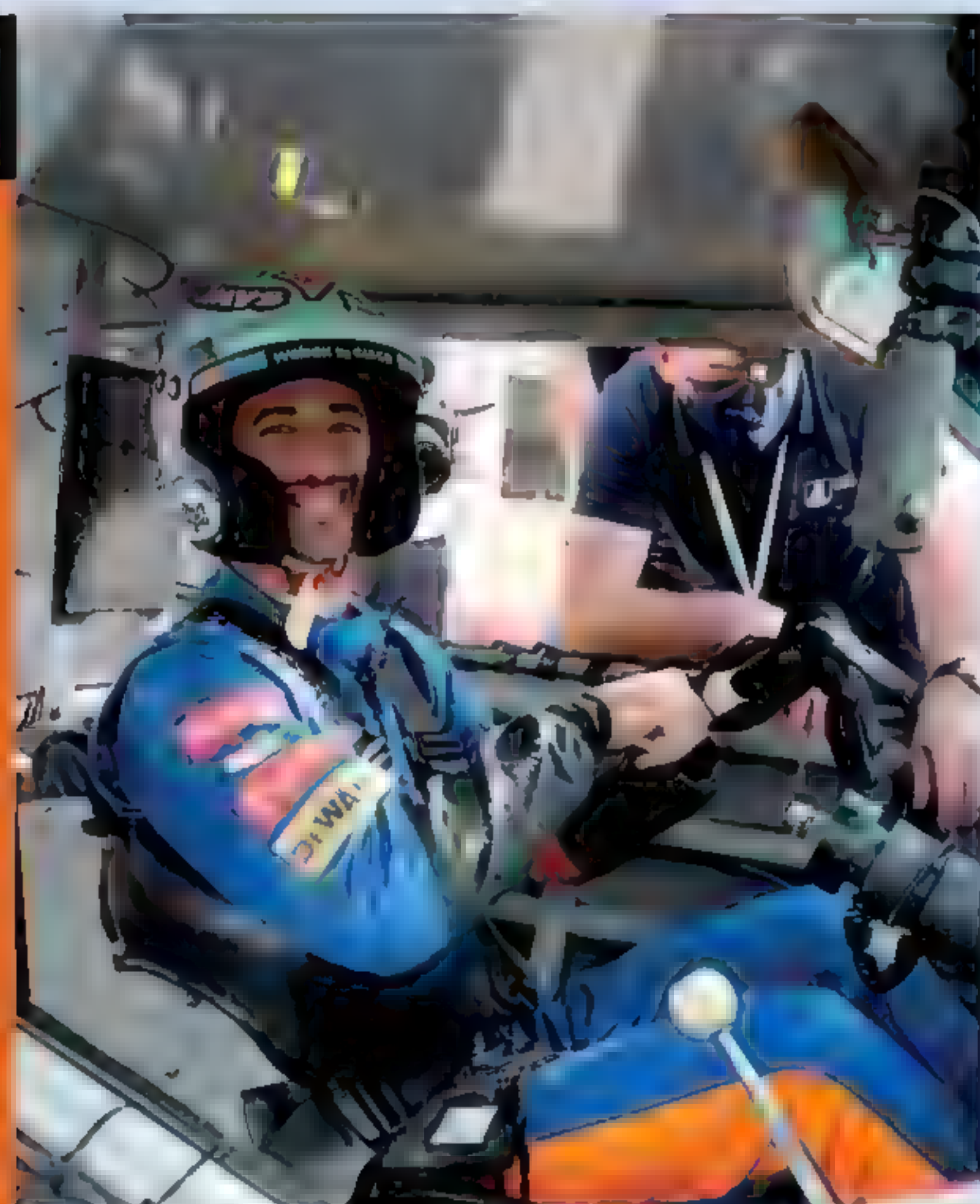
"I was definitely chomping at the bit," Ricciardo tells *GP Racing*, "and there was something – an inner confidence I certainly had. I felt better already. Since coming back from the summer break I'd felt refreshed and just ready to go, and Monza is a track I love and I felt good.

"And I'd come up short in that qualifying session. I don't know, I kind of flipped internally. I was just angry and I channelled that. I'm trying to get there more often now. I can't say that on the Friday I was convinced I was going to win, but if I look back through the weekend, am I surprised how the weekend ended? Hand on heart I'm not surprised."

Fans used to seeing Ricciardo in full smile mode on TV may struggle to reconcile his general air of grinning bonhomie with these departures into self-confessed "dark places". But he has long carried the motif of the honey badger – an unpleasantly vicious little creature – on his crash helmet, and those who follow F1 on social media or via the Netflix show *Drive to Survive* will have seen unexpurgated footage of his more extreme reactions to unfavourable events, since these outlets find it irresistible. *GP Racing* suggests to Daniel that *DTS* makers Box To Box must have an entire hard drive set aside for sequences of him dropping the F-bomb with a bilious scream which seems to reverberate with apocalyptic force through his sternum and diaphragm.

"I know where it comes from," he laughs. "As a kid, I was always a raw competitor in everything, whether it was table tennis or a game of *Uno*, I just hated losing. And I think over the years and probably maturity, I've felt better with defeat. But I'm still in some ways a sore loser where I just fucking hate it, you know?

1, 2, Earnhardt...



"So when I flip or have those moments of rage, it's when I believe that I could have done it. The times where I was miles off, I wasn't throwing chairs because it was more a case of 'hands up, I don't know what to do'. But if it's a situation where I'm a tenth off, but I know the tenth was on the table and I didn't get it, that's when it just eats me inside.

"I'm probably better at channelling that now, and I've kind of injured myself breaking things in the past so

"THE NATURAL PICTURE IN MY HEAD WAS THAT EVERY LAP I DO IN THIS CAR, I'LL JUST GET BETTER"



Dan with race engineer Tom Stallard (above). Stallard's input was key to Ricciardo unlocking his speed. The whole McLaren team exploded when Dan led Max Verstappen off the line at Monza (right)



it's not smart either. Michael, my trainer, knows when I'm like this to kind of hug me and restrain me until I calm down! It's funny because people probably wouldn't expect that from me – I'm an easy-going happy guy – but when there is competition in place, I'm a bit of a fucking psychopath I guess."

While the win at Monza was an outlier – Ricciardo and second-placed Norris maximised the potential of their cars on a track whose characteristics flattered the

MCL35M's strong points, and were assisted by the title protagonists beaching themselves in the Turn 1 gravel trap – it vindicated McLaren's approach to getting the most out of its new star driver. In a recent interview with the official F1 website, Stallard alluded to how round two, the Emilia Romagna GP at Imola, "exposed" the issues Ricciardo was having with the car after he finished an ostensibly encouraging seventh in Bahrain. Dan finished sixth at Imola, but Norris was on the podium.

One of Ricciardo's main problems was braking – not great for a driver famed for decisive, bold overtaking moves on the brakes – but this is a somewhat simplistic explanation. The issue was not one of getting used to the characteristics of different materials in the brake system but of how the car behaved while Ricciardo was braking in his preferred style, which is to hold on to some pedal pressure fairly deep into the corner. This ingrained habit was provoking the car into understeer and causing Ricciardo to ship time even though he felt that he was pushing the car as hard as it would go.

"We have a car that understeers," said Stallard, "and that's been something he's had to adapt to and modify his natural approach to get the best out of."

In effect, Ricciardo has had to reprogram his approach bit by bit until the new style became entirely natural and required less mental bandwidth to execute.

"The natural picture in my head was that every lap I do in this car, I'll just get better," says Ricciardo.

"In Bahrain I qualified sixth [sic] or something, and I knew I still wasn't close to 100% comfortable. So in my head I was like, 'Well, each time I drive now I'll just push the car more and more.' And then I, let's say, hit an early plateau where the limit was a different limit to what I was used to. And to arrive at that limit, I needed to drive the car quite differently. The car has some really strong points, but also some weak points, and I was just trying to navigate my way to the strong points. It didn't always come natural for me.

"The key was trying to break it down and understand it corner by corner because, as a whole, there were times where I was seven or eight tenths away [from Norris] and I was like, 'I can't do that. I don't know where that time is.' Even with me and Max [Verstappen], a really strong and competitive rivalry, I remember I was furious if he was two tenths faster than me. We all know the calibre of driver Max is. So, and I'm not taking anything away from Lando, a gap that big is like foreign territory really. I've never found myself in that position.

"It wasn't like I made a mistake here or there, it was I didn't know where that chunk of time was. Tom was good at bringing it back and saying, 'Look, let's analyse, let's go through this corner – why can't you do that? What's stopping you? Let's figure it out, let's go from A to B to C, as opposed to just going straight from A to F.' ►

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"Racecar drivers or athletes, we are a certain amount of stubborn. But you can't take that to your grave, if you know what I mean. At some point you have to be open-minded and say, 'Alright, this is what it is. I have to now adapt, and maybe I'm not comfortable with it at first, but take encouragement that the more I learn and get comfortable with it then the better I'll be.'"

In the past, McLaren might not have been a team which threw a comforting arm around a struggling driver. Even now, under much-changed management and seemingly in the resurgent, you could understand the leadership team – let alone the crew in the garage – losing confidence in a driver's ability. It's to McLaren's credit that it remained patient as Ricciardo put all the pieces together, because it wasn't a linear improvement. In Portugal he didn't make it out of Q1 and then, in Monaco, as well as failing to make Q3 alongside Norris, he faced the ignominy of having to let Norris past.


Aerodynamic developments, including a new front wing, arrived early in the season with a view to trimming out some of the understeer, but the fundamentals of the MCL35M were not going to change. Ricciardo spent a great many practice sessions being coached over the radio to redraw his braking profile away from gentle-firm and towards a sharp burst effort, quickly released before corner entry – a process he describes as "a necessary evil" which made him "feel like a rookie again". He says, with some understatement, that "it didn't feel great", but the process was eased by having a former Olympic rower as an engineer. Having competed himself, Stallard understood that there are days where it's just not happening, and the outlook is bleak.

"It's encouraging to have Tom by my side knowing he was a competitive athlete," says Ricciardo. "Obviously in your team you want somebody who is good at what they do, but what I also really want, what I like, is a competitor, someone who's going to fight alongside me and look for that last little edge. And obviously Tom is someone who went to the Olympics and brought home a medal, so I know that's in his character."

"So that's cool. And the support of Tom, and really the whole team, was good – they were very understanding and patient, for sure. But, yeah, there was also at times a kind of 'pull your finger out'. And I'm big enough to take constructive criticism – there were no insults or beating me down, it was always trying to understand, 'OK, what is the issue? And then how can we help you?' That was a more modern approach to take and it's served us well."

The 2021 world championship run-in has some tantalising narrative threads going on behind the headline battle between Mercedes and Red Bull and their drivers. It's battle rejoined between McLaren and Ferrari, title protagonists of old, though now the fight is for third place in the constructors' championship.

That's something neither of them would have been pleased about a few years ago but, for now, it represents progress after thin gruel of late. And with a technical reset coming, who knows? Ricciardo reckons that, aged 32, he's still improving his craft and this season's transformation proves it.

"Even if this car doesn't change for five years then I'll just get better as a driver," he says. "It keeps you excited and motivated, knowing you can still improve and still be better. That's part of the reason you wake up and get on with it every day. That's exciting." 



Ricciardo takes the chequered flag at Monza, to the obvious delight of the McLaren mechanics (above). The Woking team's first 1-2 since 2010 was the icing on the cake (below)



PICTURE S STEVEN TEE

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ALBON

Partially ejected from the Red Bull turntable at the end of last year, Alexander Albon is back for another spin – with Williams. But is this going to be a career revival or merely a farewell tour?

WORDS ALEX KALINAUCKAS PICTURES WILLIAMS, RED BULL  **motorsport**
IMAGES

IT'S REALLY QUITE HARD TO NOT LIKE ALEX ALBON.

The tall, determined Anglo-Thai driver is genteel and friendly, softly spoken but smiling warmly. That's clear, even with a mask on. Right now, he's sitting outside Red Bull's hospitality tent in a sweltering Circuit of the Americas, about to issue a withering putdown of one of Formula 1's brightest stars: George Russell.

"He's actually the tightest guy I know!"

Albon has forgotten that suggestions he owes his good friend Russell a beer or two come from words he himself uttered a month earlier, but the fact he's willing to offer such a frank and amusing statement is to his credit in F1's oft-sterile surroundings. And that beer debt is one small part of the reason for his chat with *GP Racing* 30 minutes ahead of FP2 at the US Grand Prix. When F1 next returns to Austin, Albon will be quite a bit busier.

He won't be Red Bull's reserve driver, waiting in the wings should anything happen to Max Verstappen or Sergio Pérez (plus Pierre Gasly and Yuki Tsunoda at sister squad AlphaTauri). Instead, he'll be getting ready to drive – for Williams, having claimed the seat Mercedes-bound Russell is vacating.

"I'm really happy, but it's a different kind of happiness," he says of getting a second crack at an F1 race drive. "Because it's not like my first time in F1. It's not always that common for someone to get back into F1 after having a year out. So, to have another chance and get back into a race seat gives me a lot of motivation."



Albon's attitude played a key role in his second F1 chance appearing. Having been dropped by the main Red Bull team at the end of 2020, after a year-and-a-half grappling with a package that still, really, only Verstappen can properly handle, Albon was in familiar territory. He'd been dropped by Red Bull's junior programme back in 2012, and his time on Lotus F1's junior books ended similarly when that team's money ran out in 2015. The main difference this time was that Red Bull, having dropped him from its race line-up, kept him within the fold as a reserve.

And that was critical to Albon's upcoming return as a grand prix racer. He's open that he feared he'd blown his one shot at the F1 dream, but at the same time he knew all he could do next was impress in the opportunities his employer provided. Red Bull duly furnished him with those breaks because it valued Albon's assistance within the team, as well as understanding he is still really at the start of his F1 journey. Albon's 2021 duties included a DTM race ride – where Albon won once in 14 starts (he missed the Norisring finale which clashed with his Red Bull reserve duties in Turkey). But that wasn't where Red Bull really needed Albon to shine. Instead, it was in the Milton Keynes simulator, developing the RB16 into the RB16B. After all, who better was there to explain just how hard the carryover car was to drive? The team also had him complete Pirelli test runs on the 18-inch tyres coming for 2022 and, famously, re-enact Lewis Hamilton's line through Copse on the first lap of July's British GP to bolster Red Bull's case that Hamilton should have been punished more for punting Verstappen out.

That last task was widely derided, but it says more about the lengths Red Bull is willing to go in its quest to topple Hamilton and Mercedes. Albon knew his role was to complete the work and do it with the right attitude. There, he certainly succeeded.

Team insiders speak of how much mental toughness Albon has displayed in 2021. The smile might not have been ever-present, but the way he knuckled down and vowed to do what he could in the team's title push impressed the right people. Christian Horner and Dr Helmut Marko were

instrumental in getting Albon back on the F1 grid. It wasn't just Russell that told Williams what a great asset Albon would make...

"Truthfully speaking, at the beginning of [the season], it was really tough," says Albon of watching Pérez take his place at Red Bull. It was enough for him to give serious consideration to an IndyCar switch for 2022, or the "logical" move into a well-paid Formula E seat.

"But it gave me drive to get back into it. And I would say if anything it almost manifested that hunger. It was [about thinking]: 'OK, what do I do to get back into a position to fight?' It happened from the day that I got told that I wouldn't be in F1, to be fair. And it kind of built up. Three-four races into it, [I] got used to it, but at the same time I got the feeling that I could really help the team."

Albon has had an intriguing extra duty as 2021 concludes. He's been coaching Tsunoda. The pair regularly cross paths at Red Bull's simulator and Red Bull encouraged them to share their F1 experiences. For Albon, that meant offering his stablemate tips on improving his feedback to AlphaTauri – where Albon made his F1 race debut back in 2019 when it was called Toro Rosso.

"Yuki knows how to drive, he knows how to race," Albon says of this arrangement. "[But] F1 is so technical, the cars so finely tuned, and little things can help your confidence. Your approach to a weekend and things like that, it makes a big difference. It's just kind of helping him on that side of things."

That will all end soon. On January 1, Albon becomes a Williams driver. Not that he won't stop by his former squad for a chat or, no doubt, some cold caffeine, on occasion. But just as Mercedes-managed Esteban Ocon is a full Alpine factory driver, Albon has been released to Williams. Although, at this stage, not forever.

"Red Bull would have the option on me for 2023," he explains. "But at the same time, it doesn't mean that I treat that like a one-year thing. I understand Williams' goal. They have a

long-term plan to bring themselves up to the top and with their investment behind the scenes and everything like that, it's exciting. It's something which you can't ignore and something I want to help them with."

The B-side of what for Albon's sake hopefully won't be a difficult second F1 album of course concerns his soon-to-be new home. Williams is on the up after its 2018-2019 nadir, and new owner Dorilton Capital is determined one of the championship's most historic squads isn't there to just make up the numbers.

"Before there was a need to survive," Williams CEO Jost Capito tells *GP Racing*. "A driver who brought money was highly welcomed. With the investment of Dorilton Capital into the team, this is not necessary anymore."

Since Nicholas Latifi brings Sofina sponsorship to the team, perhaps this is the first stage of Williams weaning itself off a dependence on drivers who bring a budget. Capito won't say if Red Bull is contributing to Williams' coffers in return for Albon's seat, but the implication is he was hired on talent alone. Although that's not strictly true. The new Williams boss had three key criteria: age, current career position, and F1 experience. It was the final element that got Albon the edge over Mercedes' Formula E world champion, Nyck de Vries.

Capito insists "I don't see any controversy" in having hired a Red Bull-linked driver over a Mercedes one

to replace Russell. But it'd be easy to view the speculation over his team's vacant seat in the few weeks which ended the summer just gone as a proxy war battle between F1's leading squads (Ferrari-affiliated Alfa Romeo was also evaluated as a 2022 destination for Albon). But Mercedes boss Toto Wolff is satisfied that specific contract clauses prevent Albon sharing Mercedes' engine intellectual property with its chief rival, while the driver himself diplomatically says:

"I have no interest in diving in and trying to figure [anything] out. I'm a driver, not an engine guy."

So, Williams remains on friendly terms with its engine supplier – although it was interesting

"[F1] IS A MIND GAME AT THE END AND ALEX HAS SHOWN THAT HE IS VERY FAST, AND I THINK IF HE IS ALWAYS RIGHT IN HIS MIND, HE IS EXCEPTIONALLY GOOD"

JUST CAPITO



On top of his simulator work and reserve driver duties (right) Albon has been racing in the DTM (left) and coaching Yuki Tsunoda



PICTURES RED BULL CONTENT POOL, ANDY HONE, ALEXANDER TREINITZ

to note Horner refused to rule out one day supplying the team where Albon will more than likely display a Red Bull helmet livery in 2022, as part of his personal sponsorship deal with the company. After all, Red Bull is getting into the powertrain manufacturing business following Honda's withdrawal. But, right now, Williams is focused on building back to being a world champion squad one day. And from its still lowly position that means getting smaller details right before moving on.


That's another reason Williams wanted Albon. To be a "team player", says Capito. This means principally working alongside Latifi and

developing a better car package. A good thing the RB16B's development has turned out so well, at least compared with the recalcitrant package Red Bull ran a year ago...

It's a 'win-win' partnership for both parties, although the fruits of their labour will naturally be measured in actual F1 triumphs one day, or at least by how far the Albon-Latifi-Williams package can continue its momentum up the grid. But for Albon, making his F1 comeback with Williams is ideal for an extra reason: it's a less pressured environment than one where victories and titles are the immediate goal.

"I don't know what he had at Red Bull, but

everybody says that Red Bull is not known to be really easy-going for the drivers!" Capito jokes. "We are good in including and involving drivers. And make them feel within a family. [F1] is a mind game at the end and Alex has shown that he is very fast, and I think if he is always right in his mind, he is exceptionally good."

It's rare for an ejected F1 driver to get a comeback shot. With Williams in 2022, Alex Albon has got that, plus what many drivers need when they initially join the circus: a seat away from the spotlight to develop and grow. On paper, as Capito puts it, "It's the right environment for him to shine." 

THE LONG INTERVIEW

He's had a major technical hand in world championship-winning cars for Benetton, Renault and Mercedes. Having recently 'moved upstairs' as Mercedes' chief technical officer, James Allison explains to *GP Racing* why being a technical director is the most exciting job in Formula 1 – and why he's decided now is the time to let a new face take charge of 'truffle hunting'...

WORD: STUART COOLING
PICTURE: GLENN GUNBAR
motorsport
IMAGES

THIS IS
JAMES
ALLISON





Command of the air was a concept which infused James Allison's life from the very beginning – his father, Sir John Allison, was a fighter pilot and later commander-in-chief of RAF Strike Command, as well as a passionate restorer and driver of vintage cars.

Hardly surprising then that an early life surrounded by both aeronautics and the works of automotive pioneers should

set James on the road to a career in Formula 1, initially as an aerodynamicist.

But you'll see another thread woven through this story: the sense of duty which abides those who have grown up in and around the armed forces.

James's career has encompassed soaring highs and shattering lows – and, as he embarks on the next phase of it in a new role as Mercedes' chief technical officer, he's ready to tell *GP Racing* all about it...

GP Racing: In your Mercedes corporate profile, you say – jokingly – that you wanted to work in Formula 1 because it was a great alternative to growing up and getting a proper job. But given your family background, it feels like a natural fit that you should get involved in cars and aerodynamics – and, dare we say it, a little bit of war as well.

With cars and aeroplanes a big part of his early life, Allison's move to a career in F1 was not a big surprise

James Allison: In my head, then and now, 'a real job' is one where stuff moves slowly, where priorities are not always clear, and where there isn't the purity of what we get to do. And what we get to do is deeply exciting and challenging. You know exactly what you're there for.

I was an engineer at university but most of my engineering pals there didn't go on to become engineers, they went off to the City, making money. I didn't fancy that, it left me a bit cold. I knew I liked aeroplanes a lot through my upbringing. But the industry is such that if I wanted something fast-moving and challenging, I would have to set up on my own to design and make a plane, because then it could go at the pace I wanted. Or I could get on board with the big aeroplane manufacturing companies, and I didn't fancy the idea of being involved in projects that lasted 20 years and might never be built.

I'd also been very keen watcher of Formula 1 and loved the idea of a championship where engineering teams pit their wits against each other. Two boys at my school, their father was Robin Herd [co-founder of March], so I asked if I could have a chat with Robin. He encouraged me to try my luck and write to the teams, set out my stall and see what happened. I did that and said, 'I'd love to work, I don't need money, I'd just like to work in any capacity', and I got lucky.

GPR: Formula 1 teams now employ hundreds of people. When you joined Benetton in 1991 as a junior aerodynamics engineer, presumably you had more of a view over the whole car than someone in that position would have today?

JA: It was the brief interlude where Benetton had relocated its technical offices from Witney to Godalming, close to [technical director] John Barnard's home. I was very lucky to be given the opportunity by Benetton who were not the dominant team of the day, but they had title ambitions.

I was doing things in the lower reaches of the aerodynamics department, which, granted, wasn't the 150-strong army you might find in a big team today: I was the seventh member of a previously six-strong aerodynamics team, but my scope didn't go beyond the walls of the aero department. I wasn't looking over the whole car by any means.

The company had got a contract to use one of the medium-speed windtunnels at Farnborough, a much grander affair than the tunnel they had been using at Shrivenham. This windtunnel had been designed for aeroplanes and it needed to be converted to have cars in it, with a moving-belt rolling road and a moveable strut to put the model at different ride heights. And it also needed a whole bunch of wheel mounting systems. My first job was to figure out how to get the rolling road, which had been purchased some time previously from another company, into the tunnel, and the model-mounting system functioning and sized correctly. It was quite an interesting design project for someone fresh out of university. I did some epic over-engineering, but it was all still there many years later.

GPR: Very quickly you went off to work with Robin Herd at Larrousse as head of aero. Was that a case of wanting to move onwards and upwards?

JA: Actually it was just a total misjudgement. The John Barnard era came to a fairly shuddering halt when he was sacked and Gordon Kimball took over for a bit. Then Flavio [Briatore] did the deal with Tom Walkinshaw, who had a design team led by Ross Brawn and which had acquired Pat Symonds and Rory Byrne, who had worked at Benetton before going to the [aborted] Reynard F1 programme.

It seems like a dream now but for a while there were two projects running in parallel, Gordon Kimball's and Ross's team, one of them was going to use the V8 Ford and the other was going to use the V10, and we would figure out which was best. That didn't last very long and sensibly it all coalesced around Ross. As this was all slamming into focus, Willem Toet and a couple of the modelmakers at Reynard came in, so that team of seven became a team of 10, under different leadership, and I completely misread the situation.

I thought some trimming would be inevitable – and I would be hoofed out in favour of the incomers. So I started looking around and, as it happened, Robin Herd, having been absent from F1 for a while, had got this tiny little outfit in Bicester

Allison's time at Larrousse (below) allowed him to experience life at the other end of the grid



acting as a design team for Larrousse, one of the back-of-the-grid strugglers. He asked if I wanted to come and join them.

I handed Willem my notice, saying, "Look, I'm going to save you the trouble, I've accepted a job elsewhere." He put his head in his hands and went "Nooooo..." He had a contract for me in his hands which included a substantial pay rise.

But by that stage I felt like I'd given my word to Robin. It might have seemed crazy to leave a team where I'd created a favourable impression, and go to a smaller one for less money, but it felt important to do what I said I'd do. And actually it was a great experience working at the other end of the grid. The aerodynamics department was me and two model makers. It was super-busy, and of course doomed to failure. But along the route to that failure we had a lot of fun, we scored the

**I THOUGHT SOME TRIMMING
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SO I STARTED LOOKING AROUND**

occasional point, and I learned more about the overall car by virtue of being in a small team. When Larrousse failed [in 1994] I got back in touch with Willem, and he offered me a job back with Benetton, which by then had moved to Enstone.

GPR: How do you re-integrate into a bigger team when you've had a theoretically more senior position in a smaller one?

JA: Aerodynamics departments are divided into operational stuff that makes the bits which are tested in the wind tunnel, and the conceptual stuff that comes up with the shapes and ideas. During that period, I worked alongside Nikolas Tombazis, who's now at the FIA [Toet left for Ferrari in late 1994]. Nikolas was the conceptual aerodynamic brain, and I was the make-it-all-happen person, so I was looking after all the design and a good chunk of the testing. We made a reasonably good team until around 1997, when Nikolas decamped to Ferrari along with Ross and Rory.

GPR: Was that how you ended up moving to Ferrari? Benetton did go off a cliff, competitively, in the following years.

JA: We did. We lost Michael to Ferrari, and we acquired in his place Gerhard Berger and Jean Alesi. This wasn't an upgrade.

Additionally, the team lost Flavio, and the Benetton family started to run the team. We lost a lot of sponsorship, on top of losing Ross, who is a very capable engineering leader. I was soldiering on and not enjoying the work. The overall experience of being in F1 remained great but, compared with the championship-winning years of 1994 and 1995, the decline was horrible and I felt personally responsible for that – because with Nikolas gone, I was left running the aero department alone.

We were trying to keep the windtunnel programme going at Farnborough while building a new tunnel on site at Enstone. This was pretty major work because it was during the period where windtunnel models were going from just being able to adjust the ride height and pitch angle, to being able to do ▶

roll and steer as well. The model-actuation system for that is difficult to get right, and this was back in the days when it was being done for the first time. I was stretched very thin by that stage and working insane hours – as were many other people – and it was hard because after all the effort you weren't even seeing a flicker of reward on the track. Quite the opposite, in fact: the car was worsening with each passing season, the money getting harder to come by in sponsorship terms, and the management were getting agitated.

When you're in a team on a downward cycle it's a very insecure feeling. But it did culminate in possibly the best thing that happened to me career-wise, which was that I was pretty much sacked in 1999 – I think 'constructively dismissed' would be a more accurate description. I was doing a straightline aero test in France and was asked to come home early to interview a

**On reflection
Allison sees being
effectively 'sacked'
from his role at
Benetton in 1999
as a positive move
for his career**

potential new aerodynamic recruit.

It was Ben Agathangelou, a splendid fellow who had been running the aero for the stillborn Honda programme. I interviewed him, said he was a decent chap and would fit in nicely, and then I got a call from Nikolas saying, "James, you need to watch your back because your team has hired Ben to be you." Interviewing your replacement was a little hard to take!

GPR: It's very much the case, isn't it, that from a corporate point of view a human sacrifice is often required when a project is deemed to be failing?

JA: It was a fantastic wake-up call for what a company is and isn't. I had given everything to the effort. Whenever there was a fork in the road, should I double down on trying to make





the work stuff come good or should I pay a bit of attention to my wife and my young children, I'd always chosen the path of work. I was kidding myself in some way that I was looking after the future of my family... that there would be some sort of reciprocal commitment, in difficult times, from the company. But actually, the company isn't a person, it isn't your friend, its loyalty is to the corporate entity.

That was pretty useful recalibration of my own attitude. I could see there was more important things than 100% work, that I had other responsibilities that were more important – my wife and family. And as a consequence, I actually became a much more effective employee because I worked at a level that was hard, but sustainable, and I was a much better husband afterwards as well. So I definitely recommend being sacked occasionally – it's good for you.



The switch to Ferrari, first time around, and working with Jean Todt (above), was a hugely enjoyable time for Allison

I wound up in Italy, working for Nikolas at Ferrari at the beginning of the glory run, which I was then able to play a small part in. And the experience of being in Maranello with 'Becca – my wife – and my three kids was just brilliant. We had nearly five years out there in an idyllic place with lots of new friends and experiences.

GPR: Was Ferrari where you learned the art of 'truffle hunting', as it were? Ross Brawn had that reputation for gathering everyone around, breaking down the silos between departments, and encouraging ideas which might individually bring tenths of a second, but which added up to more.

JA: Ferrari was a well-organised team and Ross a very talented technical director. But it wasn't just the technical side. A team that is succeeding has got strength and organisation across the board. Jean Todt was a great team principal. He worked very hard to keep things stable in an environment that's famously unstable. He was ruthless about cutting bad apples away from the team and, as a result, it was a good environment where people knew they were pushing on the same wheel. It might not be tenths, it would be hundredths, but every person was adding hundredths. It was also my first experience of spending any time at the track, which may seem unusual to people outside F1.

Ferrari were the most adventurous team and the first to spot the opportunity to make sure the people at the track were getting the best out of the car aerodynamically. Before then, there hadn't been a systematic link between the race team and the aerodynamics team, to find out whether the car was performing as the windtunnel suggested it should.

When Nikolas hired me, he offered a range of possibilities, working in the windtunnel or this job, and all would have been fun, but this one was cutting new ground. And it was a great experience, not just that I was trusted to lead something new, but also because back in the day race teams treated the factory with a degree of contempt. I had to be a little bit skilful from a human perspective to get the relationship strong enough that people would give me an ear – and then once they did, and tangible results started flowing on the stopwatch, that was it. ▶

JEAN TODT WAS A GREAT TEAM PRINCIPAL. HE WORKED VERY HARD TO KEEP THINGS STABLE IN AN ENVIRONMENT THAT'S FAMOUSLY UNSTABLE





After another return to Enstone, during which time Allison moved up to a technical director role, it was back to Ferrari again in 2013



GPR: In 2005 you went back to Enstone – Renault by then – as deputy technical director. At what point during the Ferrari years did you start to aspire towards taking more of an overall leadership role?

JA: People often don't believe me when I say this, but at no point have I thought in those terms – and I think it's a mistake to. The experience of being sacked made it pretty clear in my mind that personal ambition was a dangerous thing. What you should seek to do is enjoy the life you're given. If as a consequence of working hard and being a good team-mate people offer you other stuff, well, great.

I had a fabulous time with Ferrari, but my eldest daughter was approaching secondary school age. My wife and I were figuring out: [once all three children were committed to the education system] we would be in Italy for 13 more years. Will F1 continue for another 13 years? At the time there was no guarantee. It felt too uncertain for my children to commit to a future where I was less certain of being able

THE EXPERIENCE OF BEING SACKED MADE IT PRETTY CLEAR IN MY MIND THAT PERSONAL AMBITION WAS A DANGEROUS THING

to earn a wage in in a foreign country than I might be if I fell on hard times in the UK.

So I got in touch with Bob Bell, who I'd worked alongside at Benetton. We'd liked each other from the start, he'd gone off to Jordan when Benetton self-destructed, returned to Enstone when it became Renault and was now technical director.

Renault had the most amazing man, Dino Toso, as head of aero – a charismatic, talented, clever man, and his vision was a large part of why Renault had gone from an uncompetitive car in 2001 to being a race-winning contender in 2003, and then a championship winner. But Dino had been diagnosed with a very aggressive cancer and been given a grim prognosis. Despite the chemo and radiotherapy that he was enduring, he was holding down his job with great skill and inspiring courage. Bob wanted to allow Dino to do that until he felt he couldn't do



As technical director at Ferrari there were wins (left) but no titles. The tragedy of losing his wife to meningitis led to James leaving the Scuderia and returning to the UK where, eventually, he would link up with Mercedes (below, left)



on [becoming team principal in 2009], I ended up being appointed technical director.

GPR: The 2009 Renault wasn't very successful but after that the team gained a reputation for bringing some very bold innovations, both on the aero side and in chassis dynamics.

JA: Yes, that was a strange period. There are all sorts of reasons we did a poor job on that car – we'd knocked together a KERS [Kinetic Energy Recovery System] on a wing and a prayer, and it was amazing given how little we had to spend on it, but it was heavy and clunky. There were the new aero rules brought in, and our car wasn't aerodynamically sophisticated enough for that new era. We did a poor job and I think it precipitated Renault's withdrawal and the team's eventual transmogrification into Lotus, and a period thereafter where it did feel quite buccaneering and adventurous. With a very modest budget we had grand ambitions – backed up by a brilliant technical team. We were able to punch above our weight for several seasons and defy the gravity of not having a budget for a good chunk of it. It was an interesting period, wondering each month if you were going to get paid, but also competing for podiums and the occasional win.

There's sort of happy teams and unhappy teams. And Enstone was a good-natured place, there was a cohesion and loyalty which enabled people to look beyond the precariousness of the finances.

GPR: You moved back to Ferrari [as technical director] in late 2013, just before the year it went through three team principals. How much trepidation did you feel, going into such a troubled environment?

JA: It was quite a thing. I was very fond of Italy, and Ferrari is a brilliant place to be in many ways, so going back didn't make me feel trepidation for large swathes of it. But I also knew I would be in the hot seat, that the team had a technical debt which needed to be worked off, and it wouldn't be easy.

I had some good advice from Ross [Brawn]. He said: "It's an environment in which it's inherently hard to be successful. The likelihood is that you will fail. It's nothing personal. It's just that as soon as you get there, people are going to start

it anymore. Bob also knew he needed someone who could pick up the reins should Dino withdraw from the fray.

So Bob hired me from Ferrari on that basis, as deputy technical director. Dino absolutely knew and was supportive of my arrival. And he defied all the predictions made by his doctors, carried on providing Renault with amazing input for a good long period after that, during which time he got married and became a father, and the team won two championships. I did my best to find my feet as a deputy technical director and, when eventually Dino did succumb to his illness, my role had become useful in its own right. The team's generosity to allow me to find a role and make an adequate success of it meant that when Bob moved

FERRARI IS A BRILLIANT PLACE TO BE IN MANY WAYS, SO GOING BACK DIDN'T MAKE ME FEEL TREPIDATION FOR LARGE SWATHES OF IT





pulling you in this direction and that. You need to make sure that if you fail, you fail on your own terms. Make sure the decisions you make are the right ones, not the ones you're browbeaten into by someone else – so if you *do* get sent home in a box, make sure it was your decisions that put you there.”

That's more or less the way I've been all the way through my career, but it was a timely reminder to stay 'me'. And I don't think there's any doubt that over the arc of the three years I was there, it ended in failure because we didn't win a world championship while I was technical director. I'm pretty proud of what we did together. They were very enjoyable years. Ultimately, we parted ways in very sad circumstances, with me having lost my wife overnight to meningitis, and with children in the UK, and in the beginning of the season [2016] it wasn't looking as promising on track as my bosses or I had hoped. It was deeply tragic. I think I was fairly treated throughout – that it didn't end in a world championship is a source of regret.

I'VE HAD QUITE A FEW YEARS IN THE MOST AMAZINGLY ENJOYABLE POSITION IN F1

GPR: After suffering that terrible loss at home, did you consider not coming back to F1? Or did the offer from Mercedes come at the right time as you considered what to do with the next phase of your life?

JA: I'm very grateful to Toto [Wolff, Mercedes team principal] for the manner in which he approached me, the kindness he showed, because I was a right mess. He just made it clear there was an opportunity, and no pressure. At the time I didn't want to do anything – I hardly wanted to get out of bed. There was a little optimistic corner of me saying, “I know you don't feel like you're going to be able to do anything ever again, but you might. And if you don't then your opportunity to do stuff in the future may all vanish, so it's worth seeing if you can.” It was a very difficult dialogue with myself.

I could have floundered when I was back in the hurly-burly but this team [Mercedes] is incredibly warm. If they noticed what a mess I was, they were too polite to say so. The senior

engineering group were willing to allow an outsider to occupy the role I took on, and not make me feel like an imposter. Mercedes is something special. It is a culture in which it's easier to be brave – you're not going to have your head snapped off if you pop it above the parapet and suggest things. So we've been very successful and the trophy shelves show it.

I've had quite a few years in the most amazingly enjoyable position in F1. But I know it asks a lot from me. Maybe this isn't true for everyone but, the way I go about it, I'm not quite doing it in a sustainable way. Every year I've dipped further into my personal well of resource and energy. I was thinking, too, that although I bring a certain amount to the table, the team has heard my schtick a few times, and there is real value to having a fresh person if they are a credible candidate – and Mike [Elliott, the new technical director] has been developing in the wings for a number of years. He's full of vim and vigour.

As technical director you have the near-impossible task of racing the car, making sure the current car is effective, making sure the new one is going to be what it needs to be, and looking to the longer term. The call of the first two are loud – the first one can be deafening. By creating the new position of chief technical officer, the team allows me to focus on the longer term but also help Mike if he asks for help in the shorter term. And I hope that one day the team will look back and say I got the timing right when I stopped and passed over to Mike, because he's really brought things forward. 🏆

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HOW HAAS

IT
COME
TO
THIS?

From ranking as one of the most impressive new teams to join the F1 grid, Haas's stock has plummeted along with its on-track performances over the past two seasons. Everything now hangs on whether its reforged alliance with Ferrari can deliver a better car – and whether its rookie drivers can set aside their quarrels...

by OLEG KARPOV

F1  motorsport



ZERO POINTS, LAST PLACE

in the constructors' championship, only a couple of Q2 appearances all season. Those are numbers worthy of the infamous Marussia, Caterham and HRT trio. But Haas, though one of F1's newer teams, had us accustomed to something else. In the points in its first-ever race, eighth at the end of its first season, top five in the constructors' standings in 2018. Team principal Guenther Steiner's idea to buy whatever the regulations allowed Ferrari to sell, and outsource the creation of the car to Dallara, had been working.

But then it started to crumble. A problematic 2019 car led to a fall to ninth in the championship, against the backdrop of an acrimonious split with new title

sponsor Rich Energy; the team accrued just three points in 2020, followed by the departure of drivers Romain Grosjean and Kevin Magnussen; and now Haas is fielding two rookies from F2 in a car hurriedly altered to fit the regulation changes, and with no in-season development.

It doesn't take Steiner too long to explain what went wrong and when, as he sits down to talk to *GP Racing*. "In 2019 our car... you know, sometimes the development of the car was not going the right direction. We missed the boat there, when the rule change came with the big [front] wing. We went the wrong way, and when we discovered that, it was too late.

"So we were focusing on getting it fixed for 2020. And it was difficult,

because all the other ones made headway. Then in 2020 you know what came, the pandemic. We didn't know what was happening, and we stopped the development of the car.

"It sounds now too simple. But that's what it was."

Haas's horrific 2021 is a direct legacy of the previous season. As it worked on fixing the aero missteps made on the 2019 car, Steiner's team lost time. The 'secret' engine agreement between the FIA and Ferrari surely didn't help either. And when the world went into quarantine in the spring of 2020, all Haas could do was pause its deal with Dallara. To spend money developing the car for 2021, given it was already one of the slowest on the grid, made no sense to Steiner.

Anyway, Guenther had other

things to worry about in the first half of last year, as he admits his team came "pretty close" to ending its F1 journey altogether.

"When it was decided that we continue in F1, in August, or whenever we signed the commercial agreement, it was too late to make any progress for 2021," says Steiner. "So we decided to take a step back to make two forward, and call this a transitional year, which we are going through now. We're going through hell now for it."

So, in a sense, the team's current travails are an inescapable element of the long term vision.

"I was not focused on the short term anymore," explains Steiner. "Sometimes in business you have to make these decisions. You're having one or two bad years to have a long ▶





Steiner (top) hopes that the team can recover from its two awful seasons, and isn't concerned with the fact that his two drivers (above) aren't the best of friends

[term] future. And that was where I was focusing my efforts, to make sure the team is still there in 2022.”

Steiner's to-do list for the second part of 2020 included rebuilding the technical team, along with finding new sponsors, or drivers with backing. Most importantly, he had to convince Gene Haas to keep investing into the team – something Steiner admits wouldn't have been possible without the budget cap.

“For us, for sure it was one of the deciding factors,” says Steiner. “That and the new distribution of the funds from FOM. To create something sustainable you need to have profits. With the model they've put in place now, if you do a good job, you can make it [profitable]. Obviously you have to make a good job, but it is possible. And that should be the aim.

“I think I had a clearer picture [of a new long-term plan] in July, and then I just needed to speak with Mr Haas, if he accepts that picture. Because in the end the team is his. The clear go-ahead I got in August, when Mr Haas signed the Concorde Agreement.”

From then on it was all about the long term. Steiner no longer needed the experience of Grosjean and Magnussen to drive what would be F1's slowest car in 2021. What he did need was a decent budget to get ready for 2022.

Nikita Mazepin is an F2 race winner, but the cynic's argument that it was his father's millions which convinced Haas is boosted by the fact the 2021 car of F1's only American team looks like a four-wheeled Russian flag. Mick Schumacher's F2 title likewise probably wasn't the only draw for Steiner. Schumacher is the complete

package – his lineage makes him a draw for new sponsors, and he's a Ferrari protégé, which was also handy given Steiner's new plan called for even closer cooperation with the Scuderia.

The budget cap helped here as well. Since Ferrari had to reduce its headcount to fit the new financial regulations and Haas needed to rebuild its technical department, the opportunity presented itself. Now, not only are dozens of former Ferrari staff employed by Haas, they work at the new team's Maranello office, run by its new technical director Simone Resta, who joined Haas in December 2020 – from Ferrari, naturally. Haas still works with Dallara, too.

“There is about 30 full-time people there [Dallara],” says Steiner. “It goes up and down with what we need –like in every race team. November, December, January we need more people, because there you push really hard.

“Simone is managing them as well. We have got a project manager, which is the same guy at Dallara, Walter Biasatti. He was there from the beginning. But now he liaises with Simone.”

With about 70 people working at Maranello and around the same number at Banbury, where the race team is based, Haas is back to about 200 staff – the same as it was in its best F1 years so far.

It doesn't necessarily follow that the influx of staff will lift the team to its previous heights. After all, when you hire 70 people almost at once, there is no guarantee of them working seamlessly from the outset – especially with the challenge of all-new technical regs next season.

“I would say most of the people ▶



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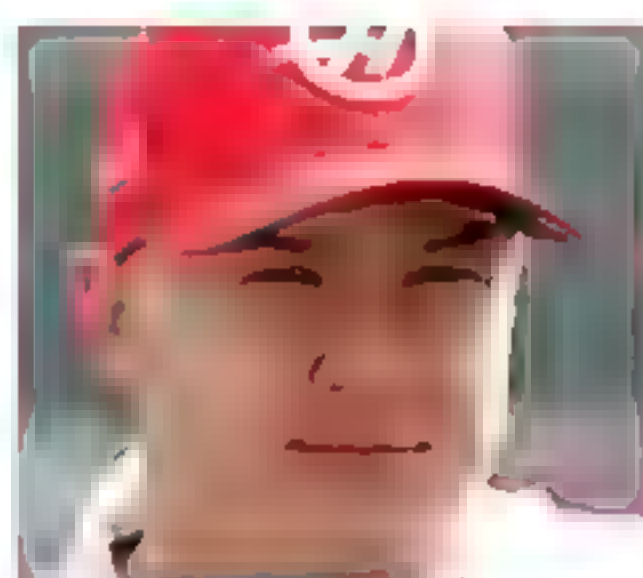
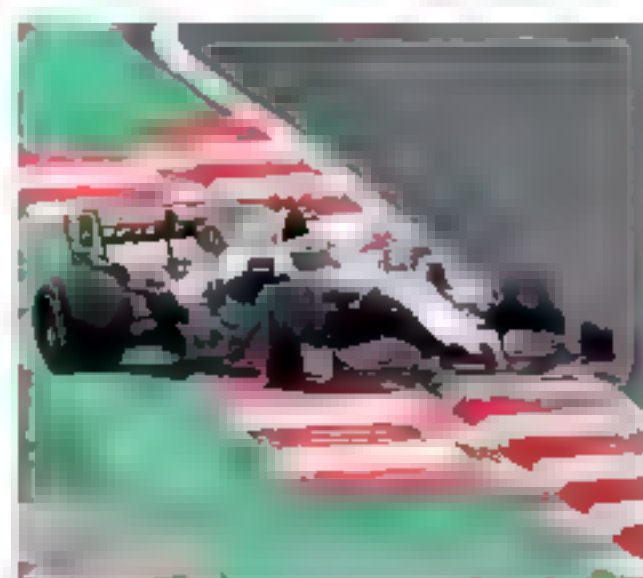
"THE SET UP HASN'T CHANGED, THE ONLY CHANGE ON THE PHYSICAL SIDE IS THAT BEFORE WE HAD A BIG OFFICE IN DALLARA, AND THAT OFFICE IS NOW SMALLER, BUT WE HAVE A BIGGER OFFICE IN FERRARI" GUENTHER STEINER

A TOUCH OF FROST?

One of the key questions this season was how effectively Haas's two rookie drivers could adapt to F1, given the limitations of the car. And as the season developed, further questions emerged over how effectively Mick Schumacher and Nikita Mazepin could work together – because it seemed that, rather like the cast of the *Carry On* films, they hated each other.

"For sure they will not admit that when they came into it they were a little bit blue-eyed, thinking, 'Oh, I can do this pretty easy,'" says Steiner. "It isn't easy coming into F1. Even I was surprised how difficult it is. But I think they've learned a lot, and know now what is important and what is not important. The only thing [which is] important is to go fast, focus on what you're doing, and nothing else. The relationship between them wasn't fantastic, but it wasn't really bad. It got a little bit better lately, but I don't know if they will ever be best friends. And I don't need that."

"As long as there is respect there for themselves and for the team – if you come from F2, your team-mate [there] is just another rival, you don't care who he drives for. But in F1 it counts who you're fighting with, so I think they get an understanding of that one, hopefully, to be ready next year, so when we get points we can get the maximum out of it for the team."



were there in January, which doesn't mean they were fully efficient in January," says Steiner. "We needed to renegotiate with Dallara – what we are going to do with them, what kind of things we need from them. So there was a lot of things to be sorted out. When we got to a good efficiency rate I would say it was April, May."

Having elected to continue the F1 project, Gene Haas visited the new Maranello base in September.

"As I say, if Gene says nothing, normally I'm pretty happy," laughs Guenther. "I think he's pretty happy [with] what he saw. The guys did a presentation to him – what they are working on for next year, where we are at for next year. He saw that we are on it again. Obviously the result of 'being on it' we will find out only next year, but he sees that there is a lot of effort going in."

Since F1 is, in effect, hitting the reset button in 2022, the good news is that Steiner's team no longer needs to be catching up – with

the caveat that Haas's rivals are all working from a similarly blank page. Obviously some teams are better resourced than others, but the Haas structure has worked in the past, and now it is theoretically benefitting from an upgrade in the form of more ex-Ferrari staffers getting involved in the place of their counterparts from Dallara.

"The set up hasn't changed," says Steiner. "The only change on the physical side is that before we had a big office in Dallara, and that office is now smaller, but we have a bigger office in Ferrari."

"I think we're still getting through ramp-up again, but we're almost there, working at the same level as 2016, 2017 and 2018 on the technical side. On the race team, not a lot has changed. The senior people are still the same, so the race team was never weakened last year."

"Therefore I don't see why it shouldn't work. I see what they're doing, the progress they're making. I can believe it will work again." 🏁



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MCLAREN M

A silver arrow too often wreathed in smoke



P4-15



NOW
THAT
WAS
A
CAR

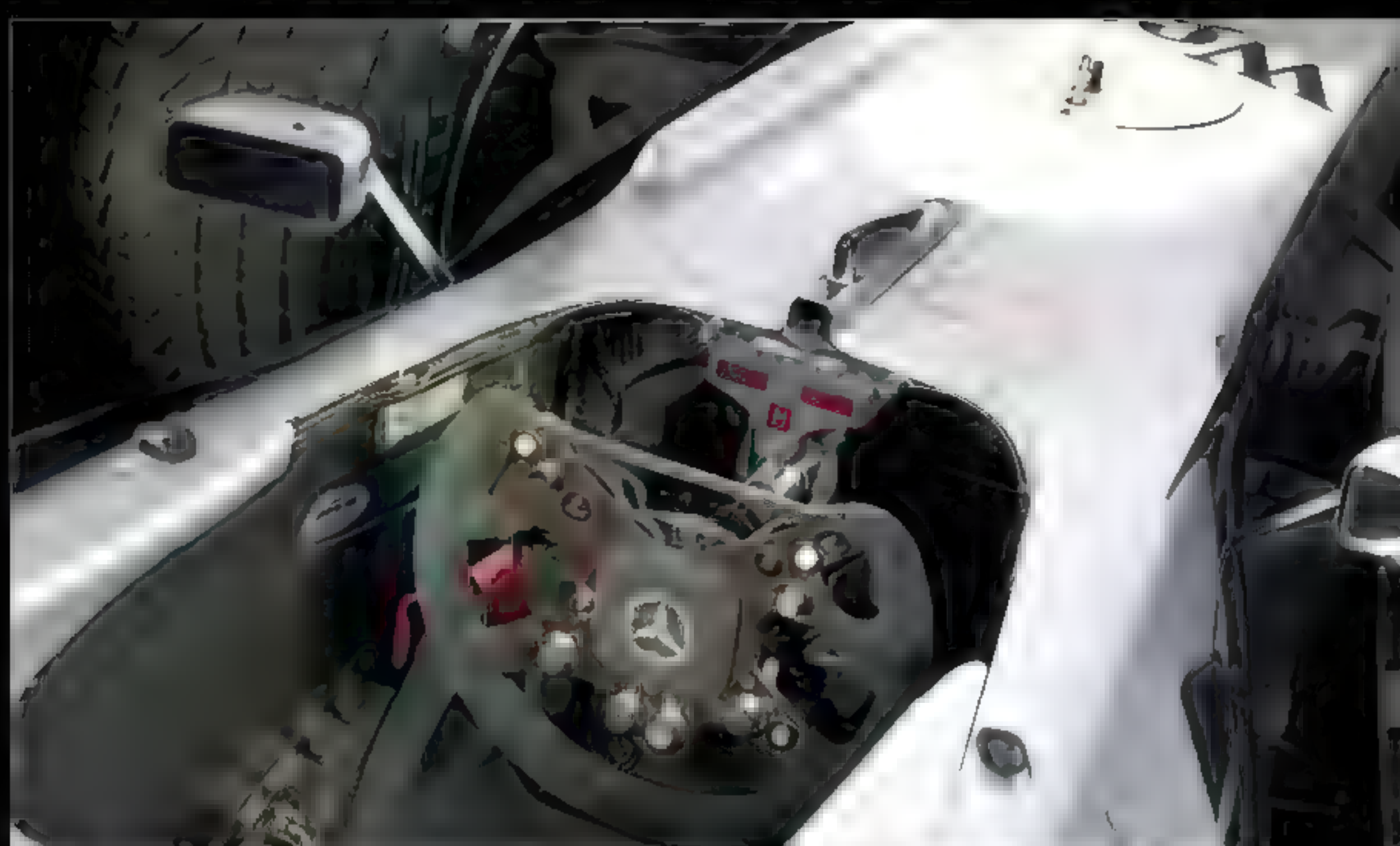
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WORDS
STUART COOLING
PICTURES
JAMES MANN

Change was in the air as the MP4-15 took shape in the late summer of 1999. The ticking over of the millennium was an inescapable hard point in the calendar, the new year of all new years, a potent cocktail of hopes and dreams and promises and, yes, nagging uncertainties, what with that pesky Millennium Bug... For once, the onset of January 1 carried a wider cultural significance than a wish list of soon-to-be-abandoned resolutions.

Such ferment for radical change passed the McLaren design office by. The move to swish new premises sculpted by Norman Foster was years away, and the byzantine 'matrix management' system was not yet a twinkle in deputy team principal Martin Whitmarsh's eye. If you were to visit the site where the McLaren Technology Centre stands today at the time of the MP4-15's launch, you would find a disc of concrete peppered with steel reinforcements where the windtunnel was to be built, along with a portacabin containing samples of sanitary fittings awaiting personal review and sign-off from infamously pernickety head honcho Ron Dennis. All the action was taking place in an anonymous industrial unit on Albert Drive where, on CAD-CAM screens within grey-painted walls (apart from Adrian Newey's rebel duck-egg blue set-up), iteration was the order of the day.

Disappointed by the unreliability of the fast-but-fragile MP4-14, in which Mika Häkkinen could have won the championship by mid-season but came sickeningly close to losing it to – of all people – Eddie Irvine, Newey's design group focused on evolving the existing aerodynamic concept and mechanical package. This would be the third iteration of



the car which had proved so successful in 1998, and a great deal of focus was applied to dialling out some of the wayward tendencies which had manifested themselves in 1999's car. The MP4-14 had proved more challenging to drive than its predecessor, less stable and more reactive to being kicked out of line by mid-corner bumps. At several rounds Häkkinen simply couldn't build any confidence in the car and, after Monaco, the team completely stripped and rebuilt the chassis in a bid to exorcise any hidden problems.

Ferrari's resurgence also proved taxing, even though Michael Schumacher missed several rounds after breaking a leg at Silverstone. The final races were a dispiriting grind as Irvine moved into the championship lead and Ferrari introduced a new bargeboard design which was initially declared illegal, then permitted under appeal. This scenario resulted in Häkkinen being declared champion after the Ferraris were excluded from the Malaysian GP results, then having to fight for it again in the final round when the decision was reversed.

"By the end of the season, I'd almost had enough," wrote Newey in his autobiography *How To Build A Car*. "The bargeboard incident was the low point of a season that had drained me mentally and physically, not to mention putting a huge strain on my marriage."

Mechanically the MP4-15 featured a revised version of the new torsion-bar rear suspension design which had been introduced the previous year, along with the latest member of the Mercedes FO 110 three-litre V10 family. While much of the aero package, including the front wing, looked familiar, the sidepod 'chimneys' which acted as hot-air vents were new and rapidly copied by rivals. Less easy to imitate immediately

MCLAREN MP4-15

NOW
THAT
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CAR

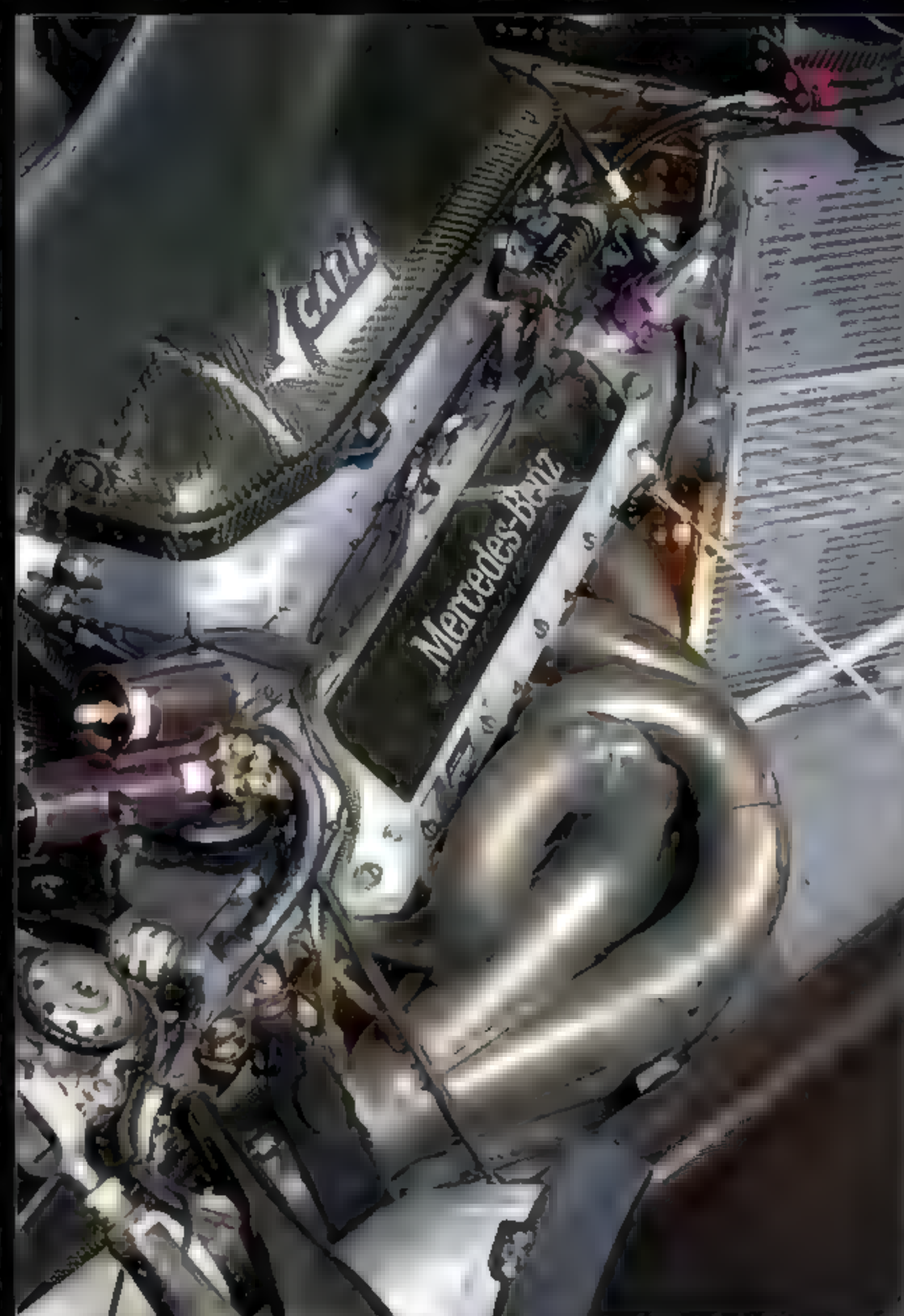
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was the exhaust configuration, which directed gases out into the diffuser via twin centrally mounted pipes.

When the FIA introduced controversial new rules to reduce car performance ahead of the 1998 season, including grooved tyres and a narrower track, McLaren had been quickest to claw back some of that lost performance. Among Newey's team's key discoveries was that the wake from the front wheels – more problematic now they were closer to the nosecone – could be managed to create an outwashing effect by elongating the sidepods. Even then, the changes made the cars more edgy to drive. And now McLaren's rivals were catching up – in some cases arguably pulling ahead. Both Benetton and Ferrari now had in-house windtunnels with the latest technology, while McLaren continued to rely on the National Physical Laboratory's facilities in Teddington (across the road from GP Racing's offices at the time). Besides inducing trickier on-the-limit car characteristics, another unintended side-effect of the regulations was to make subtleties of aero development, such as the shape of the brake ducts, more important than ever. Within a handful of seasons some of the leading teams would be running development programmes in two or more windtunnels simultaneously.

Like McLaren, Ferrari came into 2000 with an iterative development of the package it had introduced in 1998, but with an aggressive focus on lowering the centre of gravity. Even the engine design had been adjusted to suit chassis dynamics and aero: the all-new V10 was ten degrees wider in the vee. Crucially, it was more reliable than the Mercedes FO 110J, as evinced when McLaren suffered four engine failures during the course of the season opener in Melbourne. ▶

WHILE MUCH OF THE AERO PACKAGE LOOKED FAMILIAR, THE SIDEPOD 'CHIMNEYS' WHICH ACTED AS HOT-AIR VENTS WERE NEW



Häkkinen qualified on pole and led team-mate David Coulthard in the early running around Albert Park, but both Merc engines let go messily when seals popped in their pneumatic springs. Schumacher gratefully accepted the gift.

Two weeks later, at Interlagos, Schumacher was again the beneficiary when Häkkinen retired from the lead, and McLaren suffered a further kick in the teeth when Coulthard was disqualified from second after his front wing was found to be seven millimetres too low. On the face of it, bad luck for McLaren to post two no-scores while Ferrari snared two victories, but the competitive picture was rather more complex. After Melbourne Ron Dennis had emphasised that, sub-optimal reliability aside, his cars were faster on pure pace. Events at Interlagos rather undermined that view: while the McLarens qualified one-two, both Schumacher and team-mate Rubens Barrichello quickly got by Coulthard and Schumacher then passed Häkkinen, pulling clear at around a second per lap.

Ferrari had produced what technical director Ross Brawn

AFTER MELBOURNE RON DENNIS HAD EMPHASISED THAT, SUB-OPTIMAL RELIABILITY ASIDE, HIS CARS WERE FASTER ON PURE PACE

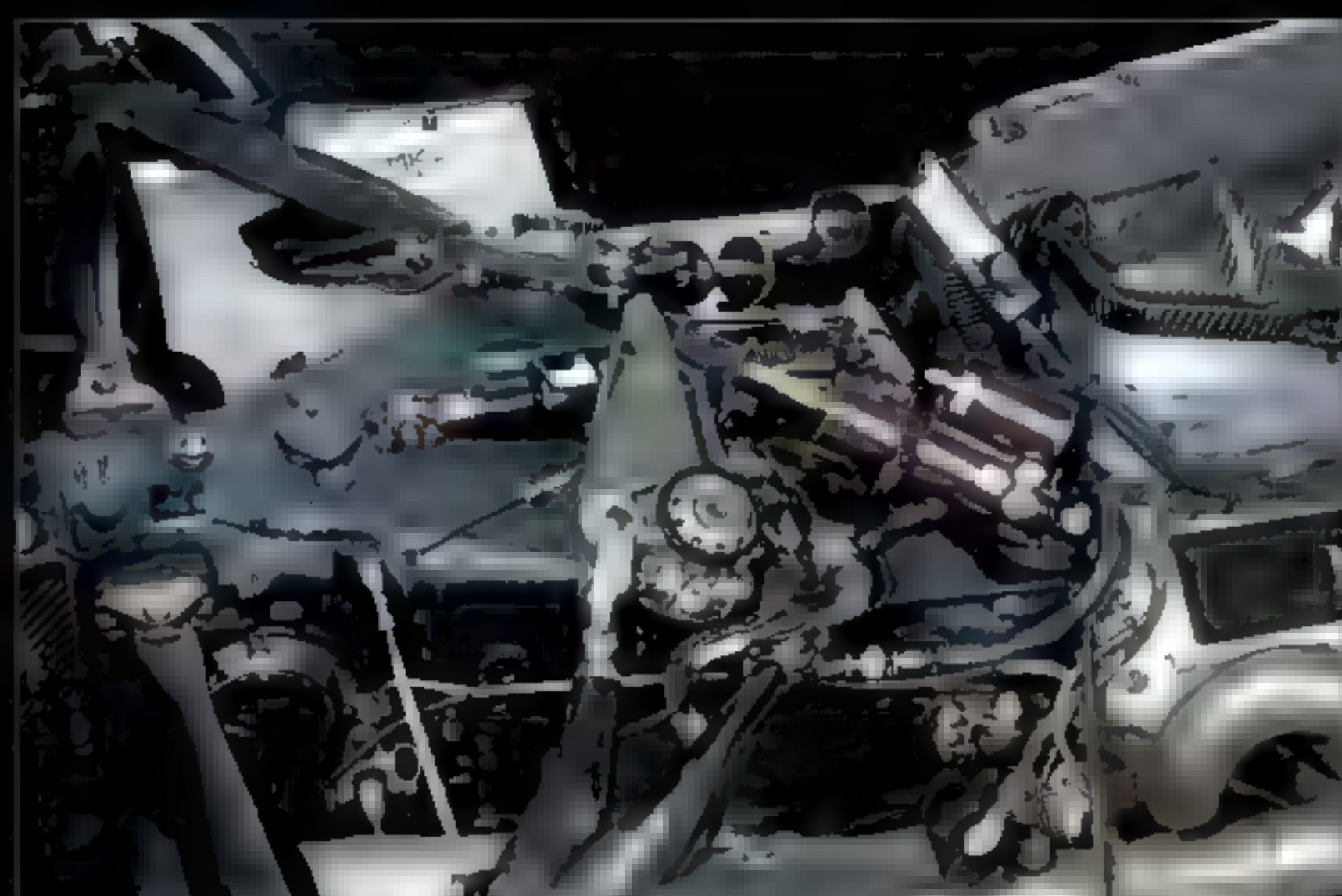
described as a 'sprint car', optimised around a smaller-than-the-norm fuel tank. Ferrari's go-to race strategy was to start off on a light fuel load and establish a virtually unassailable track position, do one short-ish pitstop then attack again before taking on another load with enough fuel to make the finish. Other teams, viewing pitstops as a significant risk factor for 'finger trouble', generally opted for the safety of a single stop. In Brazil, while Schumacher pitted relatively early, he still came out ahead of Coulthard – who, admittedly, was stymied by gearbox problems. Schumacher delivered definitive proof of Ferrari's tactical advantage next time out at Imola, where



a sizzlingly quick in-lap and out-lap around his second stop delivered track position over long-time leader Häkkinen (who at least made the finish this time).

Regardless of whether the MP4-15 was the quickest car in the field, McLaren now lagged Ferrari by 29 points in the constructors' table and Schumacher led Häkkinen by 30 points to six. It was Coulthard who claimed McLaren's first scalp of the season, winning in front of his home crowd at Silverstone – and, significantly, passing Barrichello for the lead before the Ferrari succumbed to hydraulic failure. Mika, complaining of a flawed set-up, was second ahead of Schumacher.

Häkkinen won in Spain and then began to claw back some ground. Gearbox trouble consigned him to sixth in Monaco but Schumacher retired with broken suspension, limiting the net damage to Häkkinen's hopes. Three more retirements for Michael enabled the McLaren drivers to close in and, after the German GP, Coulthard and Häkkinen were level on 54 points to Schumacher's 56. McLaren fitted a new power steering



MCLAREN MP4-15

NOW THAT WAS A CAR

No.105

system to the MP4-15 and continued to apply aerodynamic developments, but arguably more valuable was a growing understanding of how to maximise the Bridgestone control tyres, formerly a weak spot. In France, where Coulthard won, Schumacher struggled with rear tyre wear and Häkkinen had him on the ropes for second place before the Ferrari retired.

Wins for Mika in Hungary and Belgium enabled him to overhaul Schumacher in the drivers' standings, but only just. A further engine blow-up in the US GP at Indianapolis with two rounds remaining enabled Schumacher, the winner there, to retake the lead. Michael then delivered the coup de grace at the penultimate round, the Japanese Grand Prix at Suzuka: having qualified on pole but lost the lead to Häkkinen on the opening lap, Schumacher and Ferrari orchestrated another strategic rout in damp conditions in the final segment of the race. When Mika made his second stop Michael stayed out three laps longer, making use of clear air and a lighter fuel load to parlay a two-second deficit into a four-second advantage over the McLaren when he emerged. This, alongside the occasionally explosive frailty of the Mercedes engine, was the story of the season. Schumacher's points lead was now unassailable.

Off-track, all was not well within the McLaren leadership group. That summer, Dennis summoned Whitmarsh and Newey to his villa in the south of France for a poolside pow-wow. During the meeting Dennis signalled his intention to step aside in favour of them at some unspecified point, provided they pledged their futures to McLaren. Though Whitmarsh said yes, Newey demurred, unwilling to make that level of commitment with no defined date for handover of power. From then on Newey felt their relationship changed for the worse and, when his contract came up for renewal and Dennis's initial offer amounted to a pay cut, Newey took his first steps on the road to leaving McLaren. In Newey's mind the failure of 2000 was rooted in the engine and not the car. One day his phone rang; at the other end of the line was his old mate Bobby Rahal, now running Jaguar Racing.

It was time for a change... 

RACE RECORD

Starts 34
Wins 7
Poles 7
Fastest laps 12
Podiums 15
Constructors' championship points 152*
Drivers' championship points 162
*10 points deleted owing to missing seal on ECU in Austrian GP

SPECIFICATION

Chassis Carbonfibre monocoque
Suspension Double wishbones with pushrod-actuated torsion bars front and rear
Engine 72-degree naturally aspirated V10
Engine capacity 2997cc
Power 800bhp @ 17,800 rpm
Gearbox Seven-speed semi-automatic
Brakes Discs front and rear
Tyres Bridgestone
Weight 600kg
Notable drivers Mika Häkkinen, David Coulthard

NIGEL ROEBUCK'S FORMULA ONE HEROES

JOHN SURTEES

PICTURES  **motorsport
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IN
NOVEMBER
OF 1978 I GOT
A CALL...

from his secretary asking me to visit John Surtees in St Thomas Hospital, where he was undergoing surgery on his right leg, this the hangover of an accident 13 years earlier.

No explanation was offered: simply, "John would like to talk to you".

He was in good spirits, and we chatted, but still I wondered why I had been asked to visit. Finally, he said, "As long as you're here, I may as well give you some news." About what the team is doing next year? "That's the news," he said. "We're stopping..."

In today's world the announcement of a team's withdrawal would make the 10 O'Clock News, but back then PR was essentially unknown in Formula 1, and Surtees was anyway not the sort of man to be bothered with it. Was he going to make a formal announcement? "No – you write the story in Autosport, and then everyone will know."

John had driven his last race at Monza in 1972, and now, six years on, it was the end of Team Surtees. "We've never had big sponsors – frankly, my holding company has been the major sponsor, and I've decided enough is enough, simple as that."

It was a poignant farewell for a man who might have failed as an owner but had been a truly great driver – and one who came to four

Surtees was a hands-on team owner, but his eponymous outfit never managed to win a points-paying Formula 1 race



A winner of many titles on two wheels, Surtees was immediately quick on four wheels and should have won his third ever F1 race

wheels only after a blistering career on two. His many motorcycle world championships with MV Agusta were followed, in 1964, by another in F1 with Ferrari, a feat that will likely remain unique.

Surtees was a 'natural'. In 1960, while winning his last title with MV, he was also driving for Lotus, as and when dates allowed. In only his second F1 race, at Silverstone, he finished second, and in his third, at Oporto, took pole position and led until retirement.

"I turned down Colin Chapman's invitation to stay for 1961, which was silly because I liked him, and his cavalier attitude. He made the quickest cars, and if they'd been built to Ferrari engineering standards, no one else would have had a look-in."

There followed a season with the Yeoman Credit (Reg Parnell) team, using 'customer' Coopers, and at the end of 1961 came a call from Maranello. When Surtees said no, he wasn't ready, Ferrari said, 'You know we won't ask again...'

"But I didn't really believe him – I'd been around Italians enough by then! To be honest, I thought, 'You're going to need me at some time'."

For 1962 John therefore stayed put, the team now renamed Bowmaker and running cars from Lola. He finished fourth in the championship – ahead of the Ferrari drivers. "Then I got the call again, and this time I signed. The Old Man said, 'We don't have much money – but there are other advantages', one of which was

that I could stay at the Real Fini in Modena for 1800 lire a day, *full board*. That was the equivalent of one pound!"

Although Ferrari's V6 was outpowered by the V8s of Climax and BRM, Surtees was well in the mix in 1963, and at the Nürburgring beat Jim Clark to claim his first grand prix victory. The following year, now with a V8, Surtees won there again and at Monza. Second place in the Mexican Grand Prix was enough to clinch his world championship.

There would be no F1 victories in 1965, but Surtees was successful in sportscar races with his own Lola T70, winning several times before suffering the biggest accident of his career at Mosport. Severely injured, he recovered to start testing the following spring, and was moved by his reception in Maranello. Surtees committed yet more firmly to Ferrari, anticipating he would see out his career with the team.

There remained, however, the problem of team manager Eugenio Dragoni, with whom he had never got along: "He was always jealous of the good, relaxed, relationship I had with the Old Man."

At Monaco John's Ferrari V12 led until it broke, and in appalling conditions at Spa he was supreme. "Afterwards everyone else was really happy – but Dragoni never said a word to me." The situation was ridiculous: here was Surtees, driving with consistent brilliance, while the team manager sought to undermine him at every opportunity. At Le Mans it went past the point of no return.

"I was paired with [Ludovico] Scarfiotti, and it was Ferrari against Ford. The plan was for me to go like hell from the beginning – but Dragoni said, no, Scarfiotti was going to do the first stint. And why? Because Gianni Agnelli was attending the start – and it would be nice for him to see his cousin, Ludovico, drive the car! I thought, 'Oh, what's the point? I don't feel part of this family anymore'."

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**I'D HAVE WON AT
LEAST ONE MORE
CHAMPIONSHIP
WITH FERRARI, AND
I WAS VERY SAD**

99

On the spot Surtees left Le Mans for Maranello, where it was agreed with Ferrari that there should be a parting of the ways. "I think," John said. "I'd have won at least one more championship with Ferrari, and I was very sad."

For all that, they parted amicably, and stayed in touch to the end of Enzo's life: "Part of me is still in Modena, and always will be."


Immediately there was an offer to join Cooper-Maserati, which Surtees accepted, and at their first race together, Reims, he qualified second – next to Lorenzo Bandini's Ferrari! John liked the car. He finished second at the Nürburgring and third at Watkins Glen before dominating the season finale in Mexico.

What next? "If I'd been sensible, I'd have tried to sort something out with Chapman for 1967, but when Honda said they desperately needed me, I gave in..."

Two years of frustration followed: "The car – and its V12 engine – were *terribly* heavy, and also the budget was very tight. Through the season we had problems in getting the engines serviced – because we didn't have the money to fly them back to Japan!"

Ultimately Surtees prevailed upon Honda to let him bring in his friends at Lola, and at Monza the 'Hondola' appeared, this a Lola Indycar reworked to take the Honda V12. Few, it must be said, were more surprised than John when he beat Jack Brabham by a few feet to score what would be his last grand prix victory.

Although Honda was more competitive in 1968, the Japanese team then withdrew from racing, after which Surtees spent a desultory season with BRM before launching his own outfit. The first F1 car to bear his name took him to victory in the Oulton Park Gold Cup in 1970, and again in 1971, at the end of which season John essentially retired from driving. Mike Hailwood's second at Monza in 1972 was the nearest Team Surtees came to winning a GP.

Surtees died in 2017, at the age of 83. 'Big John' we always called him, and in Italy, where it all started, 'Il Grande John'. That – on two wheels or four – assuredly he was. 

It was with Ferrari that Surtees claimed his world title in 1964 but in 1966 he left the Scuderia, although he stayed friends with Enzo



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DEADLY DRIVER



A THRILLER BY
J.K. KELLY

DEADLY DRIVER by J.K. Kelly

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ADELAID



E

After a recent heritage vote saved a 1200-metre stretch of the Adelaide parkland F1 circuit from being ripped up, we thought it was time to cast our eyes over the 11 Australian GPs held there in the '80s and '90s

Not all of the circuit was located within Adelaide's Victoria Park but the grandstands and pit buildings that were inside the park's boundaries were all temporary structures. This meant that they had to be built and then disassembled every year to return the park to its original state





▲ When he launched his McLaren MP4/8 over the kerbs at Brewery Bend in 1993 Mika Häkkinen provided Motorsport Images snapper Mark Sutton with an iconic shot. Häkkinen later admitted that he made a mistake, opted to keep the car straight, and then realised that the exit kerb was massive...

► The 1994 Australian GP clash between Damon Hill and Michael Schumacher, which confirmed Schumacher as champion, was controversial, but ultimately deemed a racing incident. Here Michael, wife Corinna, manager Willi Weber (far left) and an FIA steward look back at the footage





In 1992 Nigel Mansell had been crowned world champion by the time of the Australian GP, but these fans still came out to show their support for the Brit in what, at the time, was seen as his last F1 outing. The Indycar-bound Mansell had a bittersweet farewell as he was forced out of the race when Ayrton Senna hit the rear of his Williams in an attempt to take the lead



McLaren showed a keen sense of humour ahead of the 1993 Australian GP when it decided driver Ayrton Senna needed some new gloves. At the previous race in Japan Senna, on his way to victory, took exception to Jordan debutant Eddie Irvine unlapping himself. Senna dished out his own justice after the race when he punched Irvine, hence the boxing apparel



When the South Australia government dithered about renewing Adelaide's contract with Bernie Ecclestone in 1992, Melbourne and the Victorian government jumped at the chance to steal the race away, starting in 1996. Always a GP with a party atmosphere Adelaide's final event, in 1995, was tinged with sadness at losing out on the race, and regret because it had gone to Melbourne



One of the most memorable things about Adelaide were the antics of the man who waved the chequered flag at the end of the race. Resplendent in his yellow blazer Glen Dix, aka 'The Chequered Flagman', had been involved in two and four-wheeled motorsport since the 1950s and was already well known in Australia for his exuberant flagging, so was the natural choice. These two examples of his work are from 1990 (above) and 1987 (right)



Anyone interested in F1 in Britain in 1986 might well have stayed up through the night for the Australian GP, in the hope of seeing Nigel Mansell win his first world championship. For a brief moment, when leader Keke Rosberg retired on lap 63 of 82 and Mansell was promoted to third, enough to guarantee him the title, Mansell's dream looked like becoming a reality. A dramatic tyre blow-out a lap later left Mansell deflated and with a long walk back to the pits



Adelaide's position in the calendar as the last race of the season usually meant there would be drivers racing in Formula 1 for the last time. In 1991 one such man was Satoru Nakajima, Japan's first full-time F1 driver. Nakajima, who had raced in F1 since 1987 and was in his second season with Tyrrell, had already announced his retirement and here contemplates what will be his last outing in F1





▲ Despite driving the Ford-powered McLaren Mp4/8 against the superior Williams-Renault FW15C, Ayrton Senna still won five of 1993's 16 races. The last of those, and his final F1 victory, was at Adelaide when he prevented a clean sweep of Williams poles for the season and won by over nine seconds

◀ Adelaide's relaxed atmosphere is encompassed in this picture from 1989. Topping up their tans before the serious business began were, left to right, Gabriele Tarquini, Riccardo Patrese, Nicola Larini (back row), Ivan Capelli and Pierluigi Martini (front row)



▲ Bernie Ecclestone (sat on sidepod next to driver Riccardo Patrese) bought Brabham in 1972. Under his direction the team won two world titles but the 1987 Australian GP would be Brabham's last race under Ecclestone's ownership. Unable to source engines for 1988 the team sat out the season, before eventually being sold to Walter Brun

▼ The main talking point in 1989 was not the race, won by Thierry Boutsen, but the fallout from the Japanese GP two weeks earlier where Ayrton Senna was disqualified, handing the title to McLaren team-mate Alain Prost. Senna was still in a rage and the press had a field day...



▲ The record for the shortest ever GP nod, until this year, Belgrade GP, had been held by the 1991 Australian GP. It lasted only 16 laps but Senna had already dropped out during the opening eight laps but conditions worsened around lap 14. As more cars struggled to start on the track the race was eventually red-flagged as leader Ayrton Senna started lap 17. The result was declared at 14 laps with Senna the winner.



The three title contenders, Williams duo Nelson Piquet (left) and Nigel Mansell (right), and McLaren's Alain Prost pose on the pit wall ahead of the 1986 Australian GP, the title decider. Prost and Piquet needed to win to have any chance of the title, but for Mansell third would be enough



Adelaide went out with a bit of a whimper on track. Damon Hill qualified his Williams on pole but when main rival Michael Schumacher, both Ferraris, and team-mate David Coulthard all retired before half-distance, Hill was left to coast home for the win, lapping the whole field twice



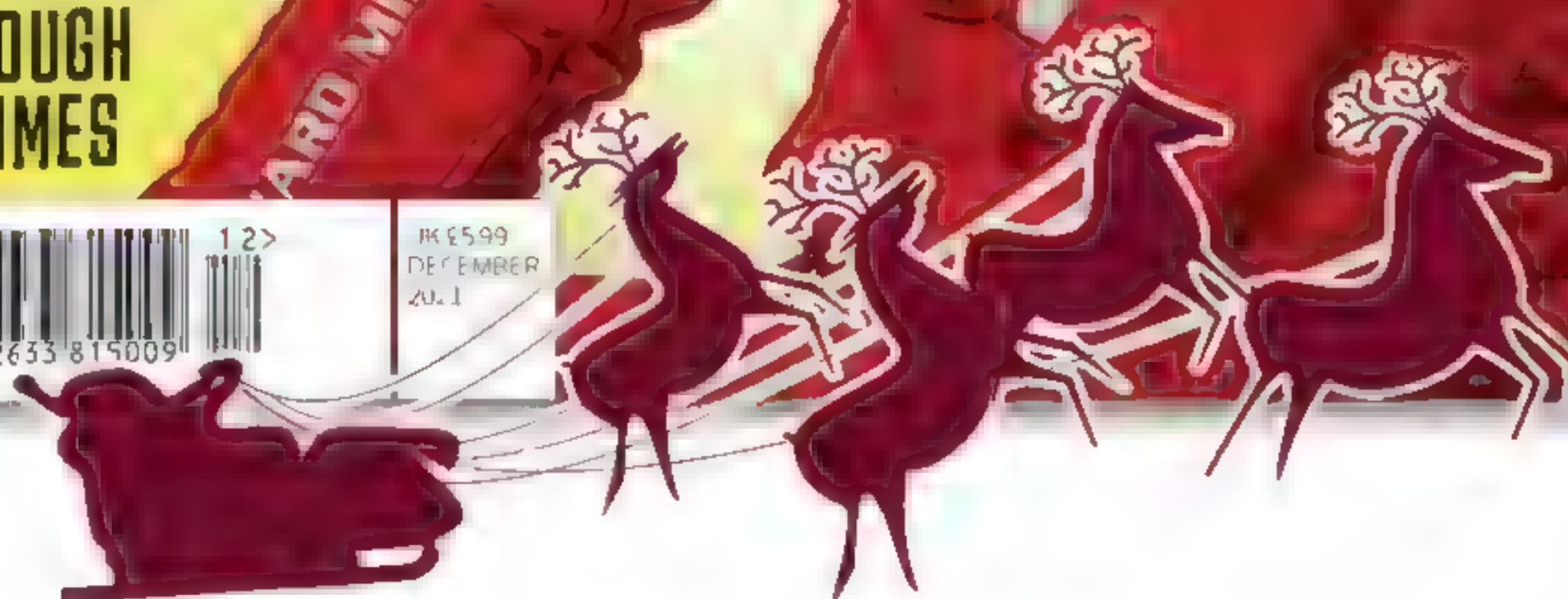
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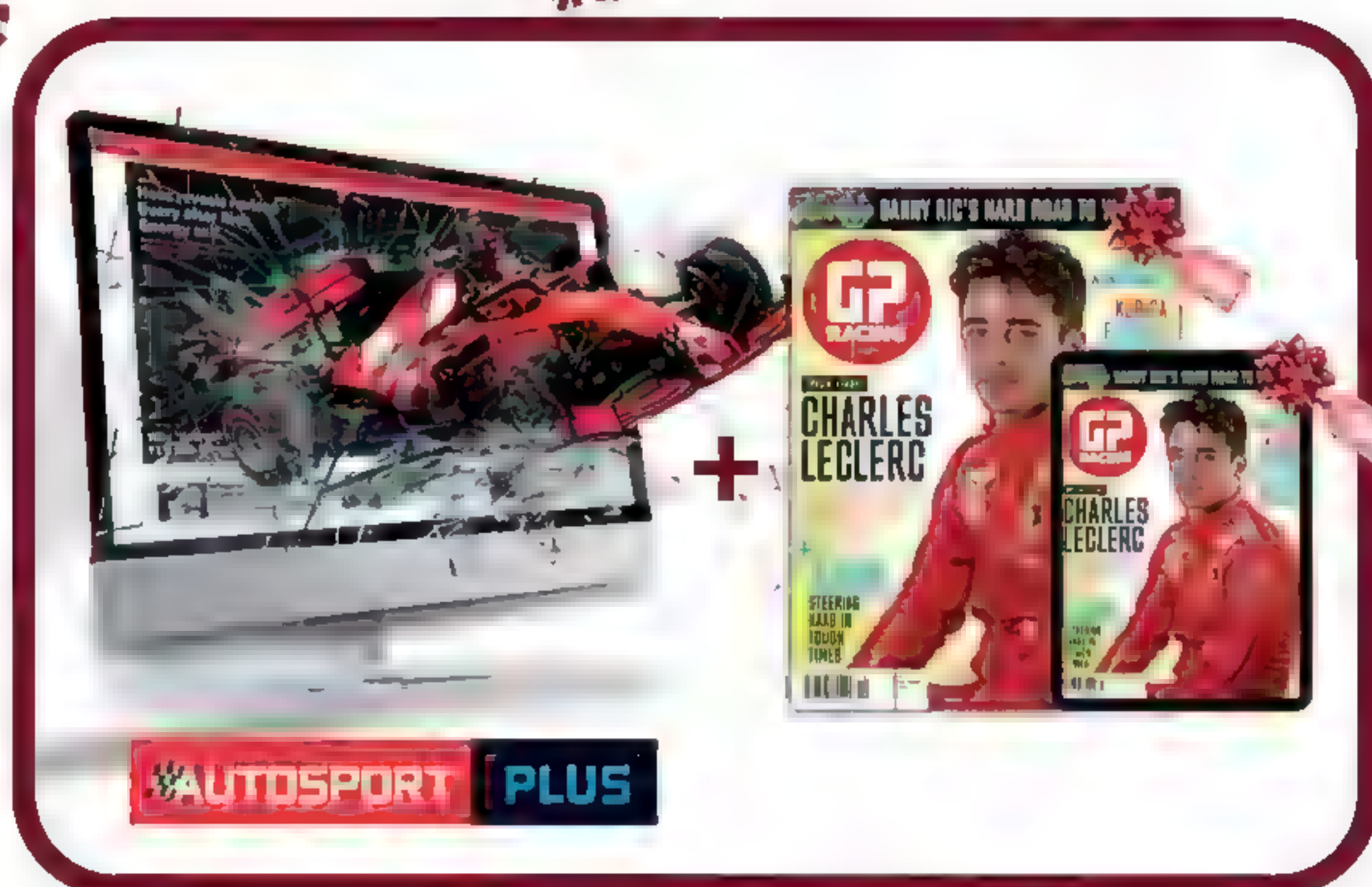


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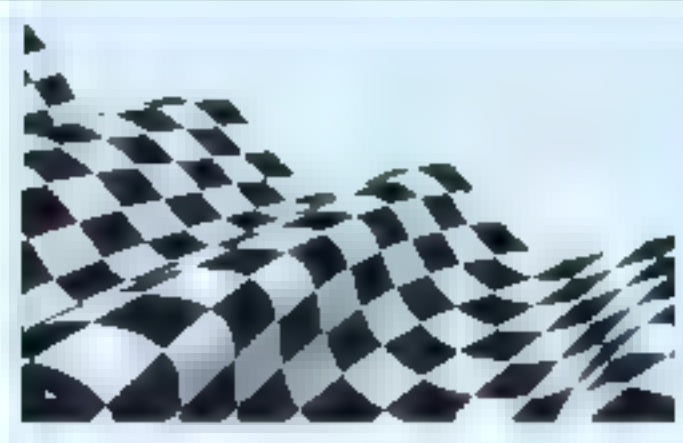
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FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 17

THE US GP IN 3 KEY MOMENTS



1 Verstappen fends off Hamilton to extend championship advantage

The United States GP served up a case study in how small the margins are between Mercedes and Red Bull in the championship run-in. Mercedes seemed to be in the ascendant on Friday at the Circuit of the Americas, only to be forced to row back on set-up choices as its cars suffered on the track's bumps. Max Verstappen then put his Red Bull on pole and executed a typically aggressive strategy to perfection, regaining the initiative after losing out to Lewis Hamilton at the start.

Ahead of the weekend, Red Bull accused Mercedes of running a trick rear suspension system (see Insider). The claim became moot – for this weekend at least – because bumps on the track surface were causing many cars to bottom out, prompting Mercedes, in the words of team principal Toto Wolff to take “some mitigating steps to not break it, or massacre it that hard”. Among those steps was an increase in ride height, Red Bull, similarly affected, obtained permission to

strengthen several components after identifying cracks in Verstappen's rear wing.

Momentum then swung Red Bull's way as Mercedes lost relative performance after a strong Friday showing. Hamilton wrestled his W12 to second on the grid behind Verstappen, while Bottas was only fourth fastest in qualifying and faced a drop of five places for a power unit change. Verstappen's team-mate Sergio Pérez was third but suffering from a stomach bug.

To be in with a chance of winning, Hamilton needed to snatch the lead at the start and did so – cleanly – but Verstappen was never far away over the opening stint, and the Red Bull seemed much more comfortable on the medium-compound tyres as the Mercedes slid around. Hamilton's options were limited – if he pitted early to get off the mediums, Verstappen could simply extend his stint and build a gap. And would Merc's performance on the hards realistically be any better?

Red Bull forced the issue with early stops for Verstappen (at the end of lap 10) and Pérez (lap 12). Mercedes now had to pit Hamilton to avoid him falling behind Pérez, and knowing the undercut would hand the lead to Verstappen.

Mercedes' only realistic option was to run an extended middle stint to give Hamilton a tyre advantage in the closing laps. When Verstappen pushed hard at the beginning of his second stint, stressing those delicate Pirellis, Hamilton was able to close to within undercut distance. Red Bull closed that possibility off by bringing Verstappen in first again, on lap 29 of 56, after which team principal Christian Horner described Max's rear tyres as “pretty much down to the canvas”.

Hamilton stayed out another eight laps and re-joined over eight seconds adrift, initially closing in at half a second per lap. But Verstappen managed his tyres better over this final stint and was able to stabilise the margin just as Hamilton got close.



Verstappen (left, with Pérez) edged a little closer to his first championship with his victory in the US

PHOTOS: STEVEN TEE, STEVE FOTHERINGTON, GLENN D'INBAR, ANDY HONE, CAR, BINGHAM

to DRS range – and Max then got a bonus DRS deployment courtesy of lapping Mick Schumacher's Haas at the end of the penultimate lap

"Max did a fantastic job managing the degradation and having enough rear tyres left for this final five laps," said Horner. "A phenomenal performance by him today."

2 Leclerc demonstrates Ferrari progress

Charles Leclerc's performance at the Circuit of The Americas flew under the radar since it involved little in the way of wheel-to-wheel combat, so the battles elsewhere drew the attention of the world TV feed. Leclerc himself described it as "a very boring race on my side". Nevertheless, it was a discreetly brilliant drive to fourth place, just 10s off a podium position, and a reminder of the progress Ferrari is making after a competitive nadir in 2020

The re-emergence of the historic Ferrari-McLaren rivalry has been one of this season's most compelling sub-plots. Leclerc and team-mate Carlos Sainz started fourth and fifth, aided by Bottas's penalty, with the McLarens of Daniel Ricciardo and Lando Norris sixth and seventh. Having narrowly avoided being T-boned by Norris as the McLarens attacked Sainz into Turn 12 on lap one, Leclerc escaped up the road while the contretemps was resolved.

Sainz went off-track while preserving his position and immediately handed it over... to the wrong McLaren. Ricciardo swept past but race control decreed that it was Norris who had the inside line into Turn 12 and should have been the beneficiary. Sainz was then called upon to let him through, though he cleverly did so just before a DRS detection point, which enabled him to quickly retake the place. Ahead, Ricciardo could do nothing about Leclerc, who finished more than 24s clear



Leclerc's quiet but impressive drive showed how far Ferrari has progressed in 2021

3 Alonso takes centre stage in stewarding debate

Having harrumphed about the consistency of stewarding after the Russian GP, saying "some rules apply only to certain people", Fernando Alonso was embroiled in another furore during the US GP.

Early in the race Kimi Räikkönen launched a move around the outside of Alonso into Turn 1. Alonso raged over team radio that Kimi had completed the move by going off-track, and was incensed when the incident was deemed not worthy of action.

Later in the race Alonso went off-track while overtaking Räikkönen's team-mate, Antonio Giovinazzi, at Turn 12, and was instructed to give the place back. Having done so he attacked again in the same place, and this time it was Giovinazzi who went off – and was called upon to yield position.

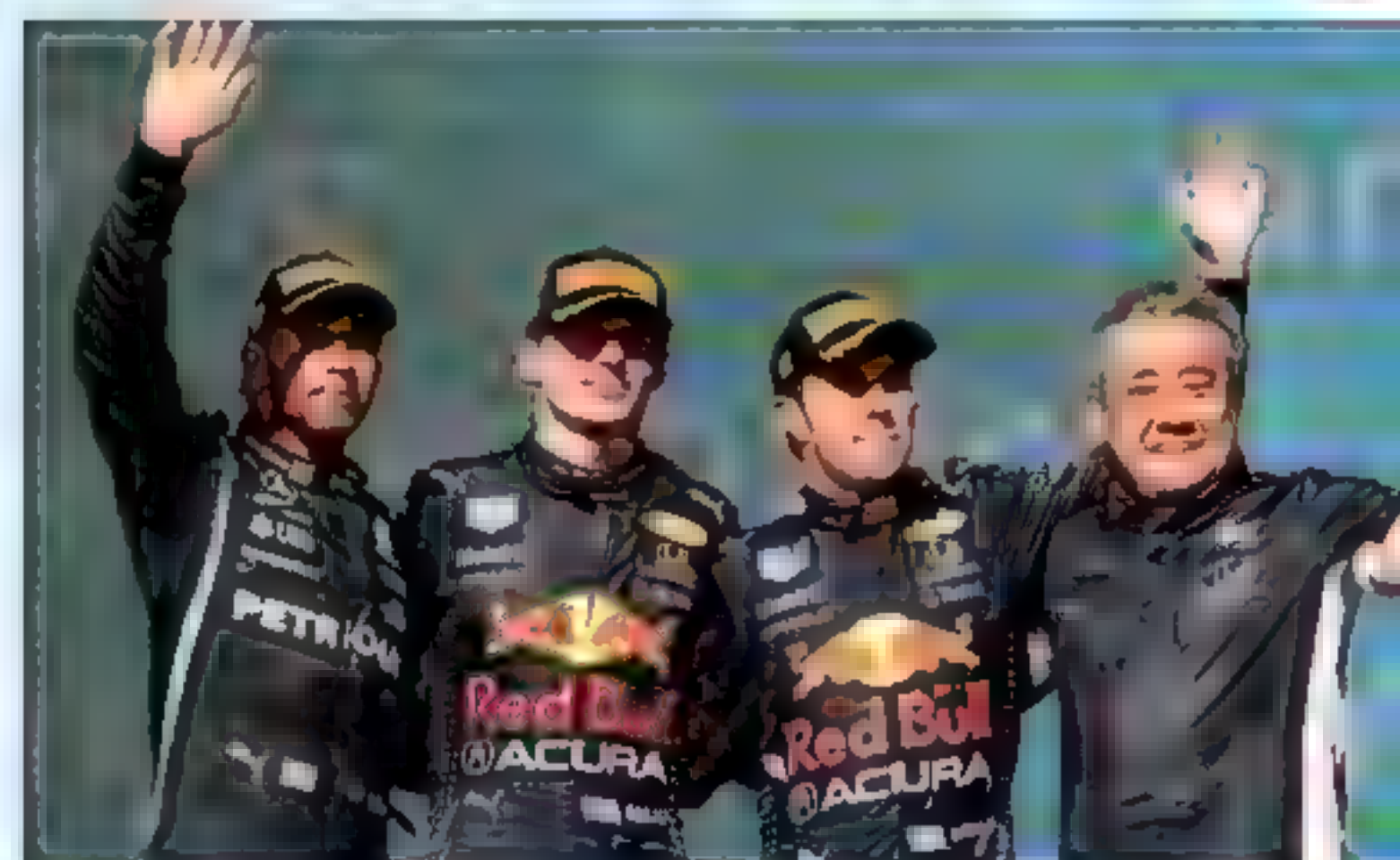
Afterwards, race director Michael Masi described the Räikkönen decision as a "marginal call", since Kimi's off-track trajectory involved a nudge from Alonso. "I think there were two parts to the story," said Masi. "It's something we'll discuss as a group at the next drivers' meeting."



This incident between Alonso and Räikkönen ignited Fernando's ire with the stewards

RESULTS ROUND 17

CIRCUIT OF THE AMERICAS / 24.10.21 / 56 LAPS



1st	Max Verstappen	Red Bull	1h34m36.552s
2nd	Lewis Hamilton	Mercedes	+1.333s
3rd	Sergio Pérez	Red Bull	+42.223s
4th	Charles Leclerc	Ferrari	+52.246s
5th	Daniel Ricciardo	McLaren	+76.854s
6th	Valtteri Bottas	Mercedes	+80.128s
7th	Carlos Sainz	Ferrari	+83.545s
8th	Lando Norris	McLaren	+84.395s
9th	Yuki Tsunoda	AlphaTauri	+1 lap
10th	Sebastian Vettel	Aston Martin	+1 lap
11th	Antonio Giovinazzi	Alfa Romeo	+1 lap
12th	Lance Stroll	Aston Martin	+1 lap
13th	Kimi Räikkönen	Alfa Romeo	+1 lap
14th	George Russell	Williams	+1 lap
15th	Nicholas Latifi	Williams	+1 lap
16th	Mick Schumacher	Haas	+2 laps
17th	Nikita Mazepin	Haas	+2 laps

Retirements

Fernando Alonso	Alpine	49 laps - rear wing
Esteban Ocon	Alpine	40 laps - mechanical
Pierre Gasly	AlphaTauri	14 laps - suspension

Fastest lap

Lewis Hamilton 1m38.485s on lap 41

TYRE COMPOUNDS USED



CLIMATE

Sunny

AIR TEMP

27°C

TRACK TEMP

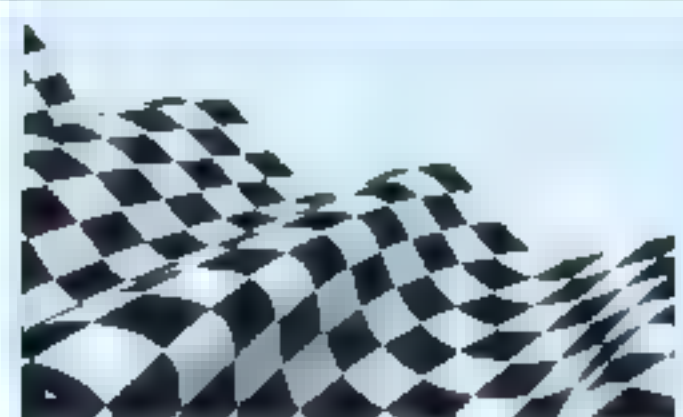
36°C

DRIVERS' STANDINGS

1 Verstappen	287.5pts	12 Vettel	36pts
2 Hamilton	275.5pts	13 Stroll	26pts
3 Bottas	185pts	14 Tsunoda	20pts
4 Pérez	150pts	15 Russell	16pts
5 Norris	149pts	16 Latifi	7pts
6 Leclerc	128pts	17 Räikkönen	6pts
7 Sainz	122.5pts	18 Giovinazzi	1pt
8 Ricciardo	105pts	19 Schumacher	0pts
9 Gasly	74pts	20 Kubica	0pts
10 Alonso	58pts	21 Mazepin	0pts
11 Ocon	46pts		



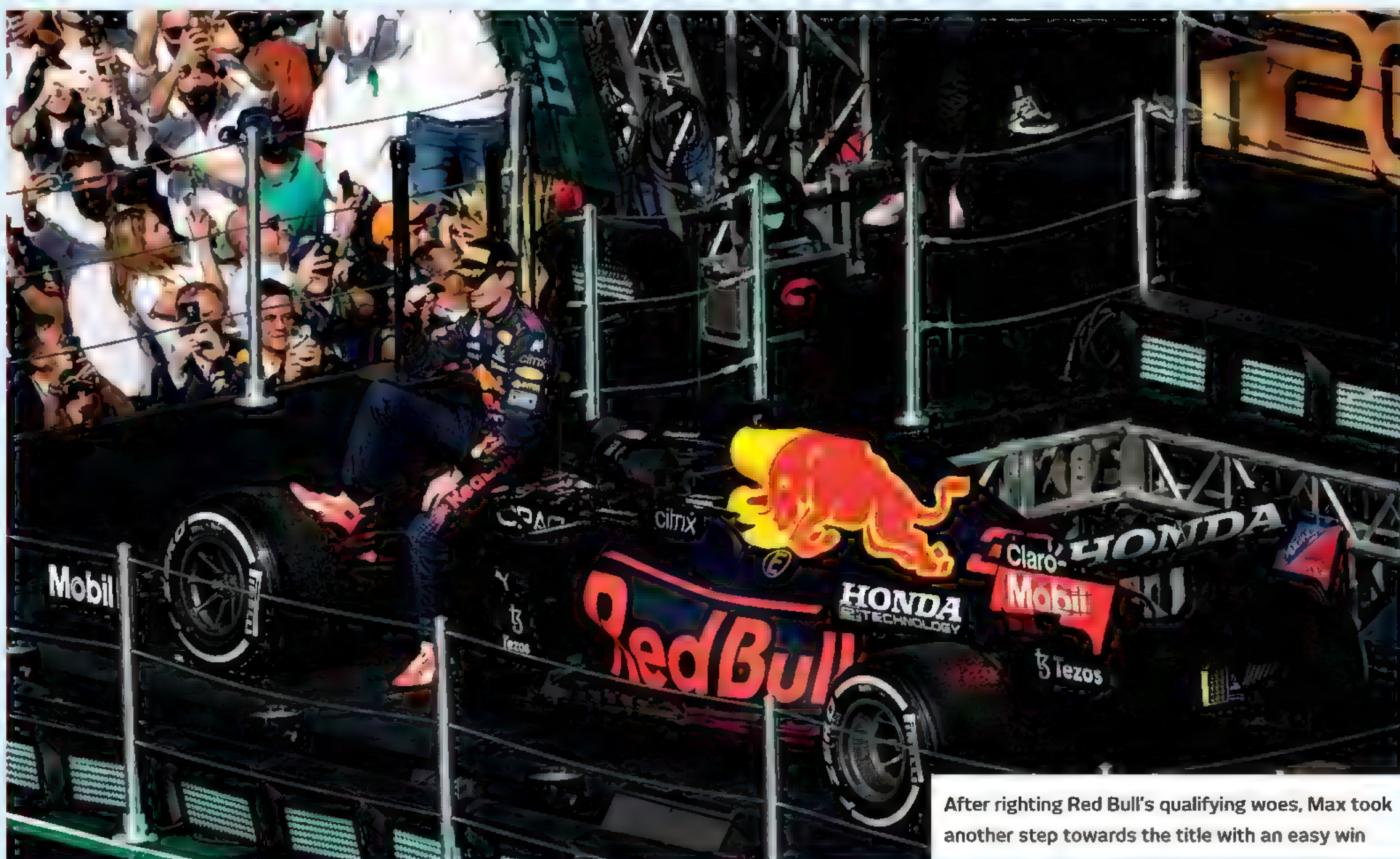
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FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 18

THE MEXICO CITY GP
IN 3 KEY MOMENTS

After righting Red Bull's qualifying woes, Max took another step towards the title with an easy win

1 Verstappen overturns qualifying upset to extends points lead

All the signs pre-weekend pointed to Mexico being a Red Bull stronghold and a chance for Max Verstappen to extend his championship lead over Lewis Hamilton. That's ultimately what transpired, thanks to Red Bull having a clear advantage over Mercedes in the race, but it also took some gutsy driving from Verstappen after he and team-mate Sergio Pérez both failed to qualify on the front row.

That was the biggest surprise of all, given Mercedes was well off the pace after practice, despite tuning its engine to become a match for Honda at altitude. Red Bull repaired cracked rear wings then failed to top any of qualifying's three segments, with Verstappen ultimately 0.350 seconds behind pole-winner Valtteri Bottas, and two tenths off Hamilton.

Much was made of the incident late in Q3, where Yuki Tsunoda – facing a grid penalty so deployed only to tow Pierre Gasly to fifth on the grid – drove off the circuit trying to avoid delaying

Pérez and Verstappen. Pérez slid off, as though distracted by Tsunoda's antics, and Verstappen aborted his flying lap anticipating yellow flags. Christian Horner said his drivers had been "Tsunoda'd"; Mercedes maintained its cars would have qualified ahead regardless.

Certainly, Red Bull struggled to get the medium and soft-compound tyres working properly in Q2 and Q3. Verstappen complained of rear sliding. McLaren's Andreas Seidl alluded to the high-altitude in Mexico City requiring unusual brake cooling set-ups, which in turn affects how the tyres and wheels absorb heat.

Whatever the precise reasons for Red Bull failing to balance its axles sufficiently, it only took the start and first turn for Verstappen to correct course. Hamilton got the best launch from second on the grid and stayed on Bottas's inside on the long drag to Turn 1. Verstappen also got away well and moved to Bottas's outside. When it finally came to the game of chicken on the brakes,

Verstappen swept bravely around both Mercs to grab the lead, while Bottas was too circumspect – "he left the door open for Max", was Hamilton's view – and was rear-ended by Daniel Ricciardo's slightly out of control McLaren at the Turn 1 apex.

"Because I was on the inside on the dirt, there was no hope for me," said Hamilton – which was true also of the rest of his race. Hamilton had to work extremely hard to stay ahead of Pérez, never mind challenge Verstappen for victory.

"I think yesterday flattered us," said Mercedes engineering director Andrew Shovlin, who feels Red Bull has the edge on highest-downforce settings and rear-limited circuits such as this. "In the hotter conditions today, we were struggling a bit more with rear grip; I don't think we've got as much downforce as they have when we go to maximum downforce and that was costing us."

"The fact is, when you are off the pace by whatever we were today, three or four tenths, then it is very difficult to win races."

PICTURES: GLEN D. NEAR ANDY HONE MARK SUTTON

2 Bottas goes from hero to zero

Valtteri Bottas did two laps fast enough for pole in Q3, calling this perhaps the best qualifying performance of his career (and who would disagree?), but having been turned around by Daniel Ricciardo's McLaren after the start, Bottas then suffered the ignominy of spending pretty much the entire remainder of his race stuck behind that very same car.

"When you're on the same age tyres it's difficult," was Mercedes engineering director Andrew Shovlin's assessment of Bottas's struggles to recover. "As we got closer, we were sliding around I think everyone was having to manage power unit temperatures a bit, so sitting there lap after lap was a problem, and also Ricciardo was able to manage through the lap to get a good exit from the last corner, and if you exit the last corner well, it's very, very difficult to launch an attack."

Bottas at least made a small contribution to the title fight by taking on a set of soft tyres and setting the fastest lap of the race on his final circuit, denying Verstappen a bonus point.



After his qualifying heroics Bottas was unable to contribute much to Mercedes' title battle after being spun by Ricciardo at Turn 1



Carlos Sainz was narrowly best of the rest in FP2 and FP3, but Pierre Gasly's AlphaTauri stole ahead in qualifying, while Daniel Ricciardo's McLaren-Mercedes split Sainz from Charles Leclerc's Ferrari.

The prancing horses recovered to fifth and sixth in the race, in part thanks to Ricciardo's first-lap misfortune, and McLaren only scored a single point with Lando Norris (who started 18th owing to a grid penalty), but Gasly finishing almost 20s up the road left team boss Mattia Binotto disappointed.

"If I look at the last races, I think we had a pace which was a lot closer to the top teams," he said. "And for a while today, it was somehow nine-tenths, a second. Honestly, I was hoping coming to Mexico to have a better overall relative performance, which has not been the case."

RESULTS ROUND 18

AUTÓDROMO HERMANOS RODRÍGUEZ

7.11.21 / 71 LAPS



1st	Max Verstappen	Red Bull	1h38m39.086s
2nd	Lewis Hamilton	Mercedes	+16.555s
3rd	Sergio Pérez	Red Bull	+17.752s
4th	Pierre Gasly	AlphaTauri	+63.845s
5th	Charles Leclerc	Ferrari	+81.037s
6th	Carlos Sainz	Ferrari	+1 lap
7th	Sebastian Vettel	Aston Martin	+1 lap
8th	Kimi Räikkönen	Alfa Romeo	+1 lap
9th	Fernando Alonso	Astoria	+1 lap
10th	Lando Norris	McLaren	+1 lap
11th	Antonio Giovinazzi	Alfa Romeo	+1 lap
12th	Daniel Ricciardo	McLaren	+1 lap
13th	Esteban Ocon	Alpine	+1 lap
14th	Lance Stroll	Aston Martin	+2 laps
15th	Valtteri Bottas	Mercedes	+2 laps
16th	George Russell	Williams	+2 laps
17th	Nicholas Latifi	Williams	+2 laps
18th	Nikita Mazepin	Haas	+3 laps

Retirements

Mick Schumacher	Haas	0 laps - collision
Yuki Tsunoda	AlphaTauri	0 laps - collision

Fastest lap

Valtteri Bottas 1m17.774s on lap 69

TYRE COMPOUNDS USED



CLIMATE

Sunny

AIR TEMP

21°C

TRACK TEMP

48°C

DRIVERS' STANDINGS

1 Verstappen 312.5pts	12 Vettel 42pts
2 Hamilton 293.5pts	13 Stroll 26pts
3 Bottas 185pts	14 Tsunoda 20pts
4 Pérez 165pts	15 Russell 16pts
5 Norris 150pts	16 Räikkönen 10pts
6 Leclerc 138pts	16 Latifi 7pts
7 Sainz 130.5pts	18 Giovinazzi 1pt
8 Ricciardo 105pts	19 Schumacher 0pts
9 Gasly 86pts	20 Kubica 0pts
10 Alonso 60pts	21 Mazepin 0pts
11 Ocon 46pts	



3 Ferrari disappointed despite overhauling McLaren

On the face of it, getting both cars home in the top six and leaving Mexico with a 13.5-point advantage over McLaren in the constructors' championship looked a good weekend's work from Ferrari.

Maranello's finest came into this race imbued with optimism, thanks to recent improvements to its engine's ERS, high altitude reducing dependence on overall power, and the SF21's relative strength on maximum downforce.

Ferrari moved into third in the constructors' championship but was unhappy with its pace



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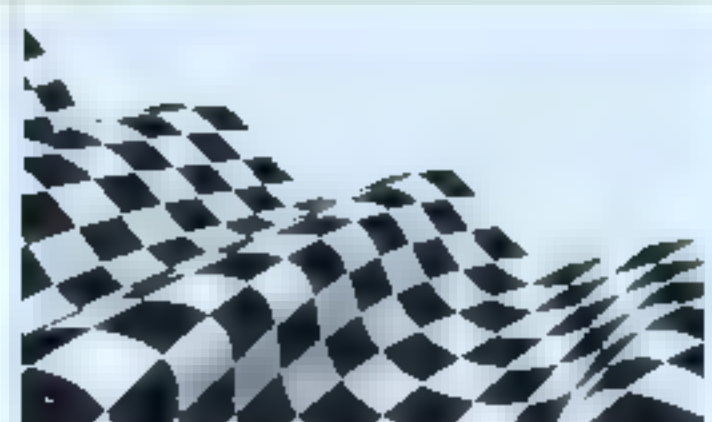
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FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 20

QATAR GP

19-21 November 2021
Losail International Circuit

PICTURES: STEVEN TEEB; MOTORSPORT IMAGES ARCHIVE; ILLUSTRATION: ALAN ELDREDGE



THE MAIN EVENT

Qatar has joined the roster of grand prix hosting nations – and not just as a short-term solution to other races being cancelled or postponed as a result of the pandemic. While this year's Qatar GP slots into the space originally earmarked for the postponed (and now cancelled) Australian round, Qatar has signed up for another 10 years, beginning in 2023.

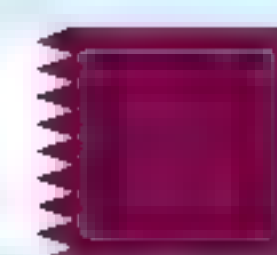
That break will enable the country to construct another grand prix venue, one more suited to racing cars, after Qatar hosts the FIFA football World Cup in 2022. Losail was constructed with motorcycle racing in mind and hosted its inaugural MotoGP round in 2004. Although it's only 20-odd miles north of the ever-encroaching suburbs of the capital, Doha, the circuit has always struggled to attract crowds and boasts just one section of permanent grandstand. A temporary one is being erected for the F1 race overlooking Turn 10, which the promoter hopes will be an action point.

That seems a little optimistic, since the track design majors on slow and medium-speed corners, most of which have a constant radius. The Turn 6 hairpin comes almost immediately after a double-right through which it will be difficult for cars to follow closely. It may be possible for drivers to get a good exit from Turn 7 and hang on to enough momentum in the sweeping bends which follow to launch a move at Turn 10 – that's clearly what the promoter is betting on – but it remains to be seen how realistic this aspiration is. Pirelli is bringing its hardest three compounds in anticipation of the front-lefts taking a pounding.

So a tyre-management grand prix is in prospect and

history supports this hypothesis. Single-seaters have raced here, most recently the short-lived GP2 Asia series which visited in 2009. Red Bull's Sergio Pérez was the only currently active F1 driver on the grid that weekend – he won the sprint race but lost the feature event, where tyre wear proved the decisive factor. Nico Hülkenberg moved into the lead when Pérez pitted early, and he was able to maintain a huge lead before making his own stop. It was not a thriller.

KEY CORNER: TURN 1 Coming at the end of the main straight, which is nearly a kilometre long, this right-hander is the main overtaking opportunity on the track. And, since Turn 2 is a left-hander, the outside line is the one to take.

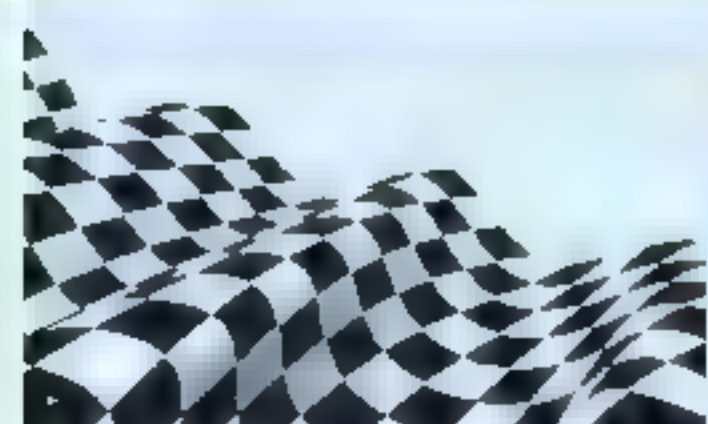


RACE DATA

Venue Losail
International Circuit
First GP 2021
Number of laps 57
Circuit length 3.343 miles
Race distance 190.549 miles
Pirelli compounds C1, C2, C3

TIMETABLE (UK TIME)

Friday 19 November
Practice 1 10:30-11:30
Practice 2 14:00-15:00
Saturday 20 November
Practice 3 11:00-12:00
Qualifying 14:00-15:00
Sunday 21 November
Race 14:00
Live coverage Sky Sports F1
Highlights Channel 4



RACE PREVIEW

SAUDI ARABIA GP

3-5 December 2021
Jeddah Corniche Circuit

FINISHING STRAIGHT

F1 WORLD CHAMPIONSHIP ROUND 21



THE MAIN EVENT

Probably the highest-profile addition to the Formula 1 calendar for the 2021 season since it is rare to encounter someone who hasn't formed an opinion about the rights and wrongs of F1 giving Saudi Arabia a sporting event on the global stage. Those in favour, and who plan to attend, can expect a no-expense-spared promotional effort (Jason Derulo and DJ Tiësto headline a concert on site on Saturday evening, followed by David Guetta and Justin Bieber on Sunday) and a venue which epitomises the philosophy of bigger-better-faster-more. Not only is the Jeddah Corniche Circuit among the longest on the calendar, it makes a virtue of having the most corners – 27 – and aims to bump Baku from its status as Formula 1's fastest street circuit.

In the long term the Saudi Arabia GP will move to a purpose-built facility, but for now the action will be located in a northern suburban area of Jeddah which is presently being redeveloped. The new corniche area certainly fuses old and new: at one end of the track lies the substantial Red Sea shopping mall, at the other you'll find the exquisite Al Rahma 'floating mosque'. The roads are of the meandering variety rather than the sharp bends and junctions you might find in the usual urban landscape, making this a highly unusual street circuit – perhaps having more in common with Sochi in that regard.

The sweeping nature of the corners will make for high top speeds and an average lap pace more in line with Silverstone than Baku, since the track in Azerbaijan's capital is a mash-up of long straights and slow corners.

There will be three DRS zones, too, hence the simulations expect top speeds in excess of 200mph.

It will be a busy lap for drivers with so many corners arriving in quick succession; as usual with Tilke tracks there are various traps laid in the hope of lulling drivers into a mistake. Turn 1, the sharpest on the circuit, arrives at the end of the main straight, while the banked Turn 13 will be momentum-sapping for those who get it wrong.

KEY CORNER: TURN 13 It's banked and the lead in is fast, so judging how much speed to bleed off will be tricky – there will be no time to admire the nearby floating mosque...

RACE DATA

Venue Jeddah Corniche Circuit
First GP 2021
Number of laps 50
Circuit length 4.172 miles
Race distance 191.662 miles
Pirelli compounds C2, C3, C4

TIMETABLE (UK TIME)

Friday 3 December
Practice 1 13.30-14.30
Practice 2 17.00-18.00
Saturday 4 December
Practice 3 14.00-15.00
Qualifying 17.00-18.00
Sunday 5 December
Race 17:30
Live coverage Sky Sports F1
Highlights Channel 4





FINISHING STRAIGHT

RACE PREVIEW

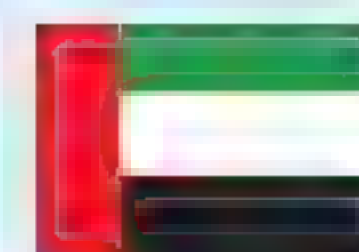
F1 WORLD CHAMPIONSHIP ROUND 22

ABU DHABI GP

10-12 December 2021

Yas Marina

PICTURE ANDY HONE ILLUSTRATION ALAN ELDREDGE



RACE DATA

Venue Yas Marina

First GP 2009

Laps 58

Circuit length 3.281 miles

Race distance 190.253 miles

Lap record (old layout)

1m39.283s

Lewis Hamilton (2019)

F1 races held 12

Winners from pole 7

Pirelli compounds C3, C4, C5

CAR PERFORMANCE

Downforce level Medium

Cooling requirement Medium

Full throttle 60%

Top speed 208mph

Average speed 124mph

TIME TABLE (UK TIME)

Friday 10 December

Practice 1 09:30-10:30

Practice 2 13:00-14:00

Saturday 11 December

Practice 3 10:00-11:00

Qualifying 13:00-14:00

Sunday 12 December

Race 13:00

Live coverage Sky Sports F1

Highlights Channel 4

THE MAIN EVENT

Formula 1's first billion-dollar circuit has never delivered on the scale of its ambitions. Abu Dhabi's rulers were determined to serve up a spectacular end to the season – but year in, year out, Yas Marina's day-into-night race has proved to be a drearily processional plod. Even when the championship has been still up for grabs.

Over a decade since its construction, the facility has received a much-needed revamp. Three key changes aim to add to the challenge and create opportunities to overtake – although, since this track has two straights around a kilometre in length, that shouldn't have been a problem. What was the Turns 5-6-7 complex has been consolidated into a single hairpin with more run-off and no chicane preceding it. The former Turns 11-12-13-14 are now one sweeping banked corner, and the section under the hotel has been opened out to make it less stop-start.

2020 RACE RECAP

Lewis Hamilton returned after contracting Covid-19 ahead of the Sakhir Grand Prix, but there was no challenging Max Verstappen, who put his Red Bull on pole and led every lap of the race. Valtteri Bottas and Hamilton qualified second and third and that's where they finished.

Such excitement as there was came further back as Verstappen's team-mate Alex Albon deposed McLaren's Lando Norris from fourth. Sixth for Carlos Sainz enabled McLaren to snatch third in the constructors' championship after Sakhir winner Sergio Pérez retired his Racing Point.

KEY CORNER TURN 9 Banked corners are becoming the go-to tactic for spicing up a circuit. This new section comes at the end of the second DRS zone so it might prove to be quite hairy...



THE WINNERS HERE



2020
Max
Verstappen
Red Bull



2019
Lewis
Hamilton
Mercedes



2018
Lewis
Hamilton
Mercedes



2017
Valtteri
Bottas
Mercedes



2016
Lewis
Hamilton
Mercedes

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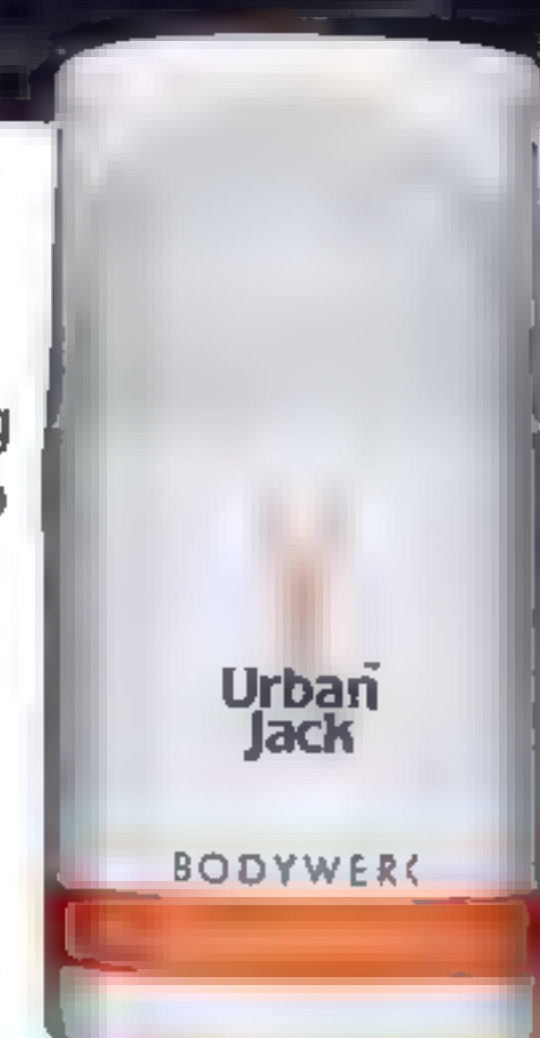
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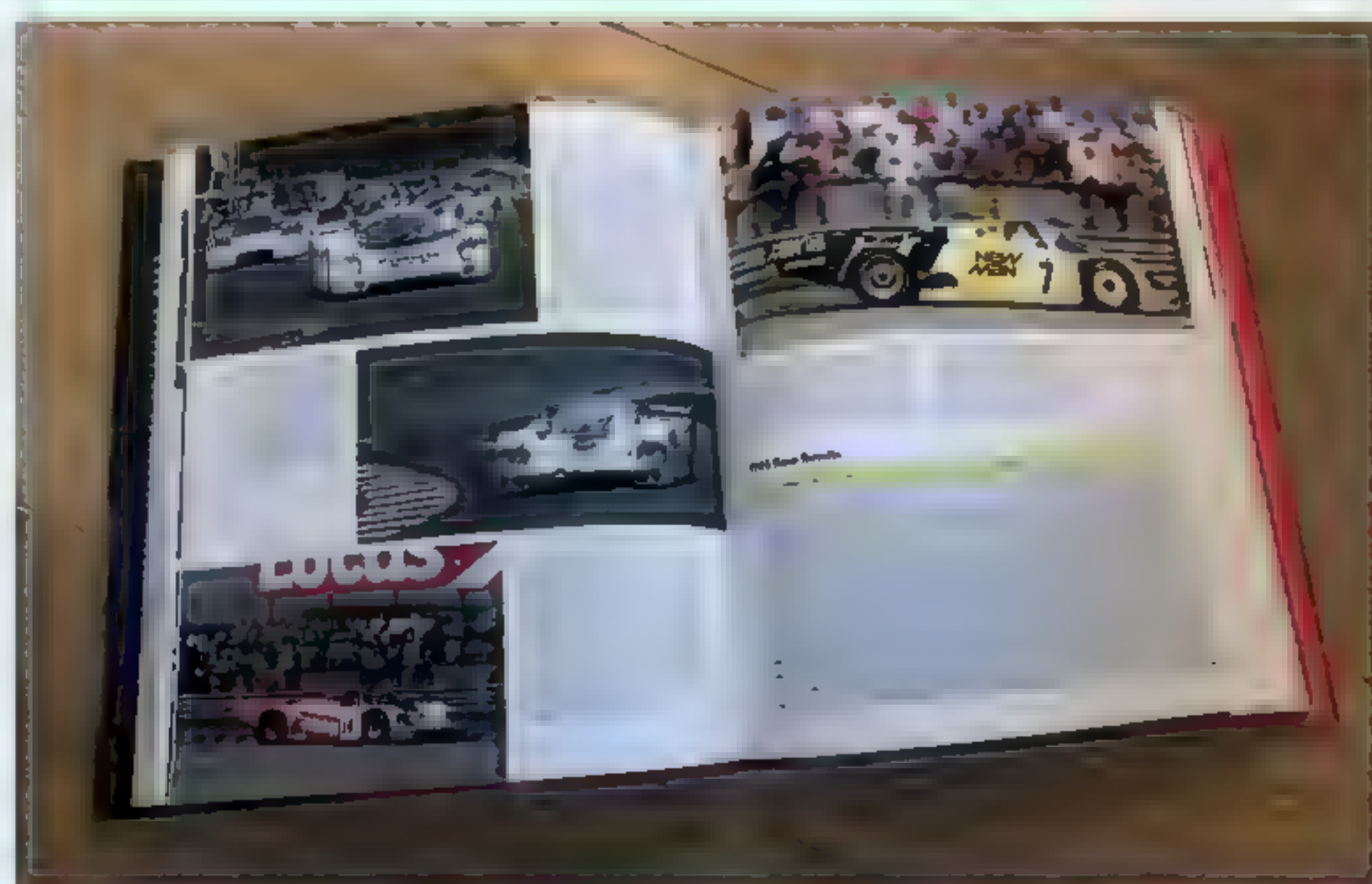
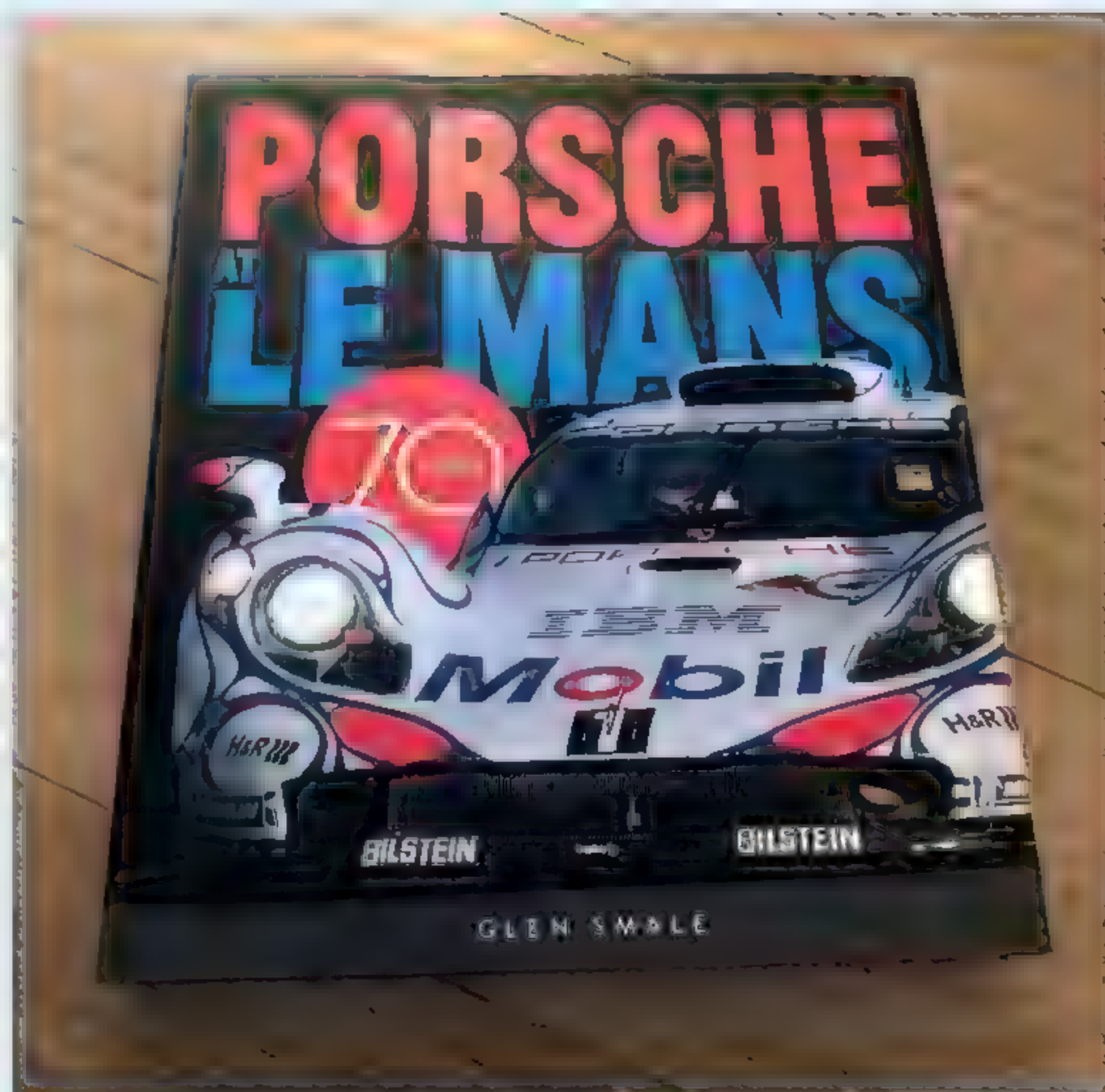
Price €399

mclarenstore.com

Dedicated McLaren fans have enthusiastically embraced the team's recent papaya orange makeover and now they can co-ordinate their tech with their team merchandise. Klipsch is McLaren's official headphone and portable audio partner, and the company's flagship T5 II earphones are now available with a McLaren twist, featuring the speedmark logo and papaya ear tips, along with a new carry-case design featuring papaya

and carbonfibre-effect accents, and a ridged border styled to resemble the tread of an intermediate tyre

The buds are (Bluetooth) wireless, with state-of-the-art noise-cancelling and Dirac HD sound as well as head-gesture controls which, among other functions, enable you to answer calls by nodding. Included in the package is a dual-position Qi wireless charging pad which can accommodate a phone as well as the earbuds



PORSCHE AT LE MANS 70 YEARS

Author Glen Smale

Price £60

quartoknows.com

As the Formula 1 world waits to see if Porsche will throw its hat into the grand prix ring once again, here's a timely reminder of the marque's epic history in another sector of motor racing. Award-winning author Glen Smale chronicles Porsche's involvement in the Le Mans 24 Hours year by year, from its first foray at the legendary endurance race in 1951. Back then the story at the front was Jaguar vs Ferrari, and Porsche's relatively humble entry

amounted to just a pair of 1100cc-engined 356 coupés – one of which subsequently failed to start after an accident in practice

In later years Porsche not only became the most successful marque at Le Mans – notching up seven consecutive victories from 1981 to 1987 – it arguably kept the event afloat during the lean times when other manufacturers lost interest. This lavishly illustrated book tells the complete story in satisfying detail

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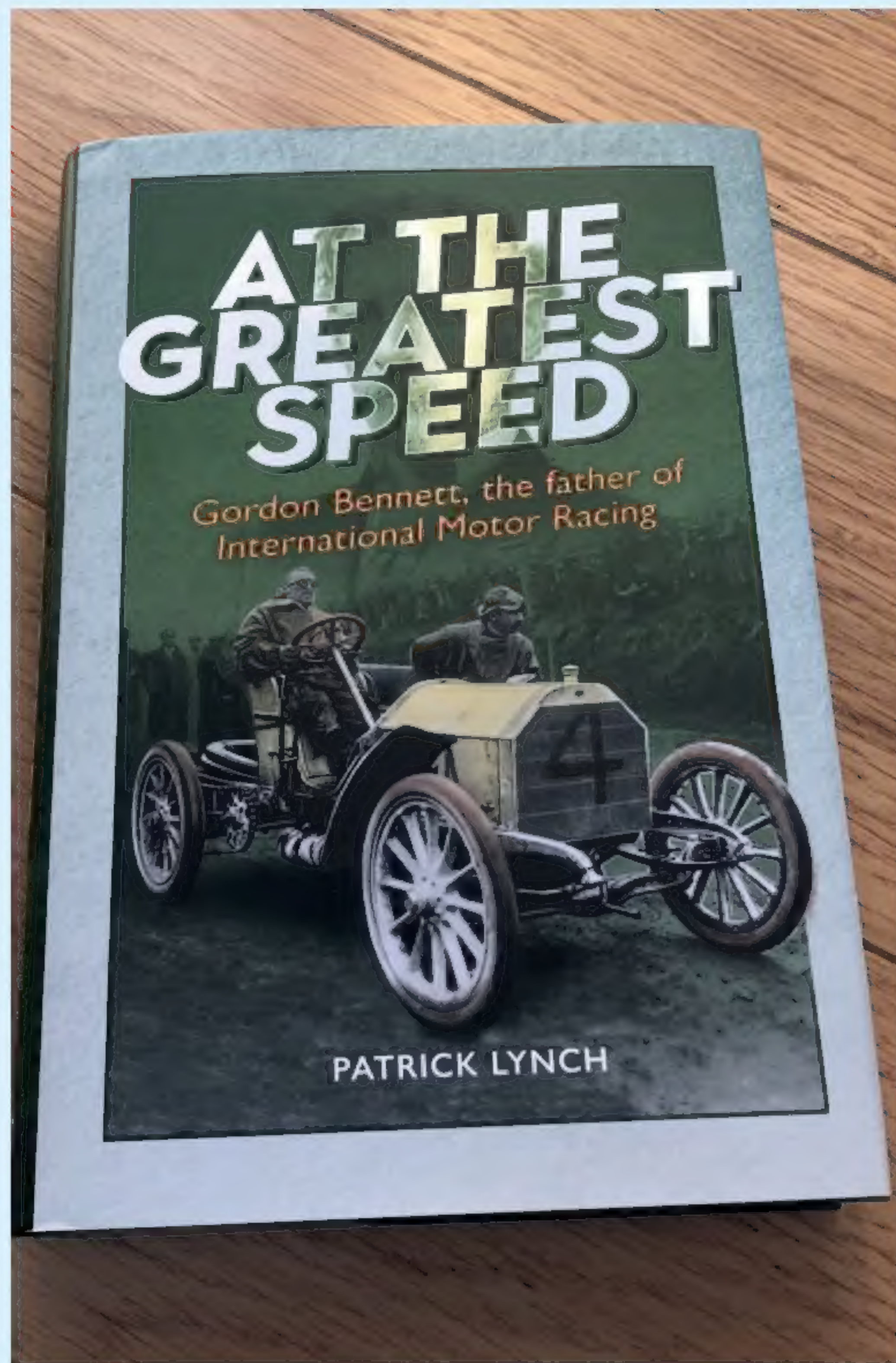
hackett.com

Busy chap, Jenson Button – as well as his advisory role at Williams, punditry for Sky Sports F1 and running his eponymous Extreme E team, he is the face of Hackett London's autumn-winter 2021 collection.

The British menswear company's new range includes a new variant of the classic Hackett London parka and the best-selling Velospeed jacket,

which is formed in a water-resistant three-layer fabric and includes a packable collar within a high-stand collar. The parka now features an eco down alternative insulation material.

New arrivals elsewhere in the collection include 'hero items' such as a tweed leather trim holdall, deerskin leather gloves, wool scarves and handkerchiefs.



AT THE GREATEST SPEED

Author Patrick Lynch

Price £25

unicompublishing.org

Grand prix racing didn't just spring into existence in 1906, when Ferenc Szisz won the inaugural 12-hour French Grand Prix on a circuit of public roads around Le Mans. Until the turn of the century races were generally point-to-point affairs between cities on public roads, arranged by national automobile clubs. It was the publisher of the New York Herald newspaper, the billionaire James Gordon Bennett Jr, who instigated the Gordon Bennett Cup races in 1900 and set motorsport on the road to where it is today.

The Gordon Bennett Cup established the principle of international competition and, although the first edition attracted just seven entries, interest grew as spectator numbers swelled and car makers recognised the marketing potential of such events. This book documents all six Gordon Bennett Cup races and fills in the details of an important but often overlooked facet of motor racing history – including the origins of national racing colours, a tradition which endured for another seven decades.



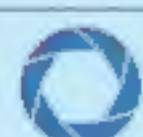
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MUSINGS WITH
STUART COOLING }

PICTURES

motorsport
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FOR F1'S TECH
'EXPERTS'?

We've had enough of experts. Michael Gove said it, so it must be true.

I'm being flippant, of course. *"We've had enough of experts": the enduring charm of quackery* was the title of a fascinating 2018 article in the British Journal of Psychiatry. Medicine was the subject, but you could easily swing the lens around to focus on Formula 1's guff-saturated information economy.

"My interest," said author Nick Ross, "is the boundary between easy thinking – fast, intuitive, barely conscious and which leads to quackery, prejudice, populism – and the stuff you have to work at: slow, calculating, conscious, which leads to science, maths, evidence and, above all, accepting contra-evidence (the stuff that challenges or undermines a truth you've long regarded as fundamental)."

Where am I going with this, you ask? Well, tucked within Formula 1's plans for a revised race weekend format is a proposal to ditch the

Thursday media conferences entirely in favour of a 'show and tell' on Friday mornings.

"We're pushing on with initiatives to get greater engagement and a greater insight into what's happening," says F1's managing director of motorsports, Ross Brawn. "So next year, on a Friday morning, the cars will be presented to you [the media]. The teams will explain the changes they've made for that weekend, and they'll declare to the FIA the changes they've made. [Good luck with that, Ross!]"

"It will create another nuance and other interest in the sport, because the technical side of the sport is quite fascinating to a lot of fans."

I can't think of anything more ghastly. We know, because every aspect of life is measured,

**Drivers and the media got to see
F1's vision of 2022 at Silverstone,
but teams might not be as willing
to show off their wares...**



that F1 fans are interested in the technology. This much was known back in the days when reader research was conducted via pen and paper, and is backed up in granular data from scrutiny of your internet habits. Any story offering an insight into such-and-such-a-car's 'tech secrets' is guaranteed to drive traffic.

Where a demand exists, a supply surely follows, and here's the beef: F1 is appallingly serviced by self-appointed 'experts' who have few formal qualifications and offer little in the way of actual insight. But by gleefully glossing piles of absolute twaddle with their veneer of plausibility, on a certain level they are giving the audience what they want.

We're into the aforementioned Type 1 thinking here: the quick, easy 'magic bullet' solution that sounds plausible, rather than the nuanced, difficult, uncertain world of science. A case in point is

the recent proverbial storm in a teacup surrounding Mercedes' rear suspension.

Barely had one drawn breath from seeing replays of the W12s visibly squatting on Istanbul Park's straights than the first learned articles, videos and illustrations began to pop up, courtesy of F1's army of self-certified tech geniuses.

And of course, none of them had a clue what they were talking about, but they carried it off with due plausibility – because this is, after all, a sales job. And there are people out there desperate to be sold to: the tropes of Type 1 thinking dictate that the more cosily a piece of information sits with your world view, the more instantly it is accepted into lore.

"Competitors always try to find out whether there's some kind of silver bullet," said Mercedes boss Toto Wolff of the Mercedes non-story. "My experience is that there's no such thing, it's all small gains, marginal gains that are being added and then bring performance."

But people don't want to read about marginal gains. That's far too Type 2. Should F1's plans come to fruition, expect more tech white noise next year.

I'll be washing my hair.

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